EVALUATING THE EFFECTIVENESS OF THE TOOTLING INTERVENTION IN THE PRESCHOOL SETTING

by

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ABSTRACT

Tootling is a peer-mediated interdependent group contingent positive behavioral intervention that research has proven to be effective in reducing disruptive behavior and increasing prosocial behavior. The current research wanted to examine if the tootling intervention could be adapted for a preschool setting while still producing positive outcomes on behavior. Additionally, the current research examined whether consultation with the preschool teachers regarding the implementation of the tootling intervention could be effectively provided through videoconferencing and other technology.

Ninety-five 4- and 5-year-old children across four classrooms located in four separate cities in the Midwest were taught how to ignore their peers' inappropriate behavior and *tootle* the appropriate prosocial behavior. A multiple baseline design across classrooms indicated the tootling intervention increased the preschoolers' prosocial behavior, decreased tattling behavior, decreased disruptive behavior at circle time in three of the four classrooms and increased class wide on-task behavior at circle time in two of the four classrooms. The participants viewed the use of technology within the study to provide teacher consultation regarding the tootling intervention positively. Technology also provided efficiency in data collection through the study. This research provides continued support for the benefits of the tootling intervention and implications from the findings for school-based practitioners are discussed. The research study's limitations and next steps for future research are reviewed.

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INTRODUCTION

Although many individuals falsely believe that disorders cannot be seen in children as young as those in preschool, research suggests that 10-15% of preschool-aged children emit mild to moderate behavior problems (Campbell, 1995). Researchers have identified that emotional/behavioral problems (e.g., conduct, hyperactivity, inattention, social problems) in preschool can impact a child's classroom engagement in kindergarten (Searle, Sawyer, Miller-Lewis, & Baghurst, 2014). Lower engagement in the classroom can result in lower academic achievement throughout schooling (DiPerna, 2006).

Behavior problems not only affect academic achievement, but are also detrimental to social outcomes. Research shows that children who are socially excluded in preschool emitted inferior development of self-regulation skills as compared to children who were not socially excluded (Stenseng, Belsky, Skalicka, & Wichstrom, 2015). Children with poorer self-regulation skills are at an increased risk for developing disorders such as attention-deficit hyperactivity disorder (ADHD) or oppositional defiant disorder. Furthermore, Stenseng and colleagues (2015) found that children who emitted poor self-regulation during preschool had an increased risk for social exclusion in elementary school compared to children with adequate self-regulation. Therefore, the development of self-regulation skills during preschool can impact whether children develop

internalizing or externalizing disorders in later years, due to increased risks for social exclusion. Finally, these researchers found that when examining the stability of social exclusion from age 4 to age 6, they concluded it to be highly stable. This suggests that without interventions or prevention programs, children may remain socially excluded into elementary school (Stenseng et al., 2015). Considering the increased risk for poor self-regulation skills and social exclusion in preschool, it is important to increase social-emotional development during early childhood through interventions that create inclusive social learning environments.

Aggression in Preschool

Past research has focused on two types of aggression or peer victimization within preschool: physical aggression and relational aggression. Physical aggression is the use of physical harm to another child's body or the threat of such harm in order to control another child's behavior (e.g., pushing, hitting, pinching; Crick, Casas, & Ku, 1999). Relational aggression is the manipulation of relationships to control other children's behavior (e.g., telling a child that he/she cannot play, telling a child he/she is not your friend) (Crick, Casas, & Ku, 1999; Swit & McMaugh, 2012).

Research has highlighted that it is more common for preschool-aged children's aggressive behaviors (e.g., relational aggression and physical aggression) to be proactive in nature rather than reactive which suggests need for interventions targeting aggression as early as preschool (Ostrov & Crick, 2007). Research also supports that relational aggression and physical aggression are highly stable over a month period (Crick, Casas, & Ku, 1999) and over 5 months (Murray-Close & Ostrov, 2009), which could indicate

that without intervention, preschool children do not change their aggressive behaviors. Older preschool children were less likely to emit physical aggressive behaviors when compared to younger children, which may suggest that they have moved towards more covert forms of aggression such as relational aggression (Murray-Close & Ostrov, 2009).

One research study found high amounts of relational aggression (e.g., social exclusion, social alienation, and rejection) emitted by one in every five preschool children (Swit & McMaugh, 2012). Research demonstrates significantly more relational aggression emitted by preschoolers who are 4.5 to 5 years old compared to younger preschool students (Swit & McMaugh, 2012). Furthermore, it has been found that children with higher language skills are more likely to use relational aggression as well as those with higher socioeconomic status (SES; Bonica et al., 2003). Both relational aggression and physical aggression can create problems in the classroom climate and result in less time spent engaging in academic tasks with the children. By reducing these classroom behavior problems through intervention, it has been found that per week, preschool teachers have 50 more minutes of instruction due to fewer disruptions during large-group activities and smoother transitions (Morris, Millenky, Raver, & Jones, 2013).

Prosocial Behavior in Preschool

Researchers have found a negative relationship between a child's level of relational aggression and level of prosocial behavior. Thus, the more a child emits relational aggression, the less likely that they emit prosocial behaviors in the classroom. One hypothesis is that young children who emit relational aggression may lack appropriate social skills; therefore, interventions should target increasing preschool

children's prosocial behaviors by explicitly teaching those skills (Swit & McMaugh, 2012). Ostrov and colleagues (2004) corroborated this association between relational aggression and prosocial behaviors, finding that both delivered and received relational aggression were associated with lack of prosocial behavior for girls, whereas with boys, delivered physical aggression was associated with a deficiency in prosocial behaviors (Juliano et al., 2006; Ostrov et al., 2004). This suggests that both aggressors and the victims of the aggression need development of their prosocial behavioral skills.

In view of the relationship between prosocial behaviors and aggression, interventions are needed to target deficits in prosocial skills in preschoolers. Girard, Girolametto, Weitzman, and Greenberg (2011) examined the impact of teacher trainings on increasing preschool prosocial behaviors. They found that children whose teachers have been trained how to promote peer interactions throughout play emitted more prosocial behaviors than those children whose teachers did not receive the training. Another study examined the use of induction and reinforcement techniques to increase prosocial behavior in preschool children by training teachers through peer-coaching. Induction refers to the cognitive strategy of increasing prosocial behaviors by helping children see how their behaviors would make other children feel (i.e., developing empathy). Research shows that the strategy of induction increased children's affection while the strategy of reinforcement increased the prosocial behaviors of helping, sharing, and cooperation (Ramaswamy & Bergin, 2009).

Positive Behavior Supports

For the past few decades there has been substantial research on response to intervention (RTI), the three-tiered data-driven model that provides intervention services at varying levels for both children with academic difficulties and behavior problems. Tier 1 consists of universal interventions (i.e., interventions that are provided to all children within the classroom) to promote academic growth as well as to prevent academic and behavioral problems. Tier 2 provides small-group interventions to those students who do not improve with universal supports in place, while Tier 3 provides intensive individualized interventions to children who continue to have difficulties (Bayat, Mindes, & Covitt, 2010).

Positive behavior support is one approach of integrating response to intervention within a preschool setting through its multi-tiered levels of support that focus on problematic behavior, which is a primary concern within early childhood programs (Fox & Hemmeter, 2009). Positive behavior supports (PBS) is "a proactive prevention program that provides assessment driven, comprehensive support that focuses on redesigning environments to reduce problem behaviors and to increase adaptive, pro-social behaviors" (Carter & Van Norman, 2010, pp. 279-280). Sugai and Horner (2002) reiterate the 7 core components:

> (a) a prevention-focused continuum of support, (b) proactive instructional approaches to teaching and improving social behaviors, (c) conceptually sound and empirically validated practices, (d) systems change to support effective practices, and (e) data-based decision making. (p. 131)

This prevention-focused program has three different levels of prevention that are based on the intensity of the components within each level. The first tier is the primary prevention, which strives to minimize the number of children who emit problem behavior

by structuring the school environment using evidence-based practices (Sugai & Horner, 2002). Core features of the primary prevention include establishing safe, predictable environments, building positive relationships, and good classroom behavior management. Additionally, teachers identify clear expectations for their students, and those expectations are visually displayed in three to five positively stated rules that students will easily understand. Furthermore, the classroom should have visual schedules displayed to provide predictability for students, aiding in transitions throughout the day. Another essential component of the primary prevention level is to build positive relationships between the student and teacher, but also with other children. Many times, problematic behaviors can arise due to a lack of attention from the teacher or peers; thus, focusing on developing positive relationships throughout the classroom may prevent behavioral problems. Finally, within the primary prevention level, teachers should implement classroom management strategies that reinforce positive behaviors and provide consistent consequences for inappropriate behaviors (Hernandez, 2010).

The secondary prevention level is designed to reduce the number of students who currently have behavioral problems by providing more specialized supports for those students who did not respond to the primary prevention supports (Sugai & Horner, 2002). Interventions are provided to groups of students to target specific behavior problems. Social skills groups are an example of an intervention that can be implemented through the secondary prevention level; moreover, peer-mediated interventions, or additional prompting/accommodations from the teacher can also be used (Benedict, Horner, & Squires, 2007). The final level is the tertiary prevention level that focuses on reducing the number of students who present with complex, significant behavior problems. The

individualized interventions focus on diminishing the duration, intensity, complexity, and/or frequency of the social/emotional problems (Sugai & Horner, 2002).

In addition to the prevention component of PBS, other important components are also present. The proactive instructional perspective of PBS allows teachers to anticipate problem behaviors and restructure the environment through antecedent-based strategies to prevent problem behaviors from occurring. Another core characteristic of PBS is its focus on empirically sound interventions that are shown to be effective through research. Furthermore, if the benefits of PBS are to be sustained, there must be system level changes incorporating the aspects of PBS in the entire school or organization, rather than in just one classroom. Finally, an extremely important feature of PBS is the reliance on data-based decision making. Sugai and Horner (2002) clarify this by highlighting that "data are used to (a) define and prioritize areas of concern, (b) select practices to address these areas of concern, (c) evaluate the impact of these practices in achieving desired outcomes, and (d) guide long-term action planning and sustainability goals" (p. 133).

Research has assessed preschools and their use of universal PBS practices such as: (a) a rules poster with three to five positively stated rules, (b) posted classroom schedule, (c) classroom matrix of behavioral expectations for each classroom routine, (d) transition signal, (e) warning prior to transitions, (f) precorrection, (g) acknowledgment system for positive behavior, (h) ratio of 4 positive statements to 1 negative statement, and (i) specific verbal praise (Benedict et al., 2007). Of the four different preschool classrooms investigated by Benedict and colleagues (2007), none of the programs implemented more than 40% of the core universal PBS features; however, some programs only had been implementing as little as 15% of the necessary core features.

Following consultation with a PBS consultant, all four classrooms increased the number of universal features implemented within their classroom. The range for percentage increased was from 12% to 40% between the four classrooms (Benedict et al., 2007). More recent research has found a similar percentage of initial implementation of the universal PBS features, with a range from 17% to 34% in four different preschool classrooms, prior to providing teacher consultation (Carter & Van Norman, 2010). Prior to consultation, the most common features that were not implemented within the classroom were (1) classroom matrix with behavioral expectations for each classroom routine, (2) lack of classroom acknowledgement system for appropriate behavior, and (3) lack of nonverbal transition signal. Through consultation alone on universal PBS features, there was on average a 43% increase in the percentage of core features implemented, resulting in an average of 74% of the features implemented on a daily basis (Carter & Van Norman, 2010). This research suggests that many early childhood programs are not implementing universal prevention techniques within their classroom and could benefit from interventions and consultation that promote increasing prosocial behaviors and preventing problematic behaviors.

Keystone Variables

> Past researchers have defined keystone behaviors as:
>
> (a) pivotal behaviors associated with response classes of maladaptive behaviors that can positively influence other child behaviors; (b) behaviors that result in other beneficial collateral child, peer, and adult outcomes; and (c) foundation skills necessary for adaptation to present and future environments. (Barnett, Bauer, Ehrhardt, Lentz & Stollar, 1996; p. 95)

In other words, keystone behaviors, when targeted with intervention, can produce change

in a wide range of behavior problems when changed themselves. It has been hypothesized that keystone variables can make interventions more time-efficient and cost effective, improve maintenance and generalization of behavior change, and lead to positive side effects (Barnett et al., 1996). Ducharme and Shecter (2011) highlighted three important keystone variables that, when targeted, can lead to generalized behavior change. The first that they focus on is the interaction between the teacher and student with a focus on compliance or following directions or demands placed by the teacher. Another important keystone variable is teaching social skills as students need to learn how to effectively interact with their peers. Finally, the third keystone variable is teaching a child on-task skills as without being able to maintain attention they will not be able to engage in their academic environment (Ducharme & Shecter, 2011). If an intervention targets one of these three keystone variables, then it is possible that broader effects will be observed outside the change in the target behavior.

Positive Peer Reporting

One effective intervention for increasing prosocial behaviors is known as Positive Peer Reporting (PPR) with substantial research demonstrating its success (Chenier, 2007; Grieger, Kauffman, Grieger, 1976; Hoff & Ronk, 2006; Moroz & Jones, 2002; Sherman, 2012). Although the intervention of peer reporting of prosocial behaviors first appeared in research in 1976 (Grieger, Kauffman, & Grieger, 1976), it was not until 1996 when researchers from Boys Town coined the term "positive peer reporting." PPR refers to a peer-mediated positive behavioral intervention that increases students' socially appropriate and prosocial behavior through the reinforcement from positive peer

attention. Peers are rewarded with points, which are later exchanged for a prize, for publically praising students on their prosocial behavior and avoiding comments or attention to their peer's inappropriate behavior. PPR uses the behavioral principle of differential reinforcement of alternative behavior by training the peers to provide attention solely towards the appropriate prosocial behavior and withhold attention when peers behave inappropriately (Murphy & Zlomke, 2014). Hoff and Ronk (2006) noted that PPR is effective because it restructures the environment to encourage and reinforce the awareness of prosocial behaviors.

Typically PPR has been implemented with students who emit disruptive/inappropriate behavior (Chenier, 2007; Sherman, 2012; Smith, Simon, & Bramlett, 2009) or are socially isolated (Moroz & Jones, 2002; Sherman, 2012); however, it can also be implemented in a class-wide format to improve the behavior of all students (Hoff & Ronk, 2006). When targeting individual children, students who emit disruptive behavior or are socially isolated will be selected to be the "star of the week." At some point throughout the day, all of the students' peers within the classroom report the positive prosocial behaviors they have seen the selected student emit and receive points towards the class-wide goal. Instead of referring to the selected student as the "star of the week" others have used the term "MVP" for older students and adolescents or "king/queen bee" for very young children. Research has shown successful adaptation of the intervention for all ages, from preschoolers to adolescents (Murphy & Zlomke, 2014). Studies have varied how long the child remains the selected student and whether other children who already emit appropriate behavior are chosen as the star student to minimize the attention drawn towards students with inappropriate behaviors. Some researchers had

the child remain the "star of the week" for 10 days while other researchers switched the students each day (Murphy & Zlomke, 2014).

After reviewing all of the literature on PPR, Murphy and Zlomke (2014) identified the most common components that were involved in the intervention. The planning phase is when the teacher selects the reinforcers that will be used to increase participation from the peers and select which student will be the target student for the intervention. The training phase is when all students in the classroom are taught what PPR entails. Specific nonexamples and examples can be used through modeling or role-playing to illustrate what behaviors to look for, as well as how to deliver praise to the target student for the prosocial behaviors emitted. The training phase is also when the students are educated about the reinforcers that are available for participation in PPR. The final phase that was described by Murphy and Zlomke (2014) is the implementation phase. This phase includes reminding the peers to observe specific examples of the target student's behavior, prompting the students to report those observed prosocial behaviors, and providing feedback and reinforcers for the successful praise by the peers. The components of PPR for successful implementation are quite simple for teachers to implement within their daily schedule.

One negative aspect of PPR is that the peer reporting is focused only on one student each day or week. This is problematic considering that PPR is most effective in increasing positive social interactions when the child is the recipient of the positive praise, rather than the reporter. Fortunately, a variation of positive peer reporting allows for all students to receive positive praise statements throughout each day by their peers. This group-oriented variation is known as Tootling.

Tootling

Tootling was developed in 1998 as a peer-mediated interdependent group contingent positive behavioral intervention in which students report their peers' prosocial behavior. The term *tootling* came from a combination of two core components of the intervention. One aspect came from the phrase "tooting your own horn" (i.e., saying something nice about yourself); however, instead of tooting their horn, students toot the horn of their peers (i.e., say something nice about their peers). The second aspect from which the term *tootling* came from the opposite behavior of tattling. When a child tattles, they report the inappropriate or negative behavior that another child has emitted; therefore, tootling is the opposite of tattling because students report the prosocial or positive behavior a child is emitting (Skinner, Cashwell, & Skinner, 2000).

Research shows that most tattling is egocentric in nature, where the tattler was directly involved in a negative situation caused by the other peer, or includes reports with no clear victim, but rather a detailing of social norm violations (Ingram & Bering, 2010). Ingram and Bering (2010) also found that it was more common for tattling to center around themes of property entitlement or physical aggression rather than joint play disputes, taunting, property damage, simple disagreements, or deception. Most often the motivation behind student's tattling was to receive adult attention toward their concerns about a peer's behavior (Ingram & Bering, 2010). Although it is good to have caring teachers, the adult attention towards tattling may inadvertently reinforce children's belief that in order to receive a teacher's attention, something must be wrong. Further evidence that tattling is problematic is shown in the strong correlation between relational aggression and tattling, which suggests that students who are relationally aggressive

towards their peers also tend to be the students who tattle the most. Therefore, tattling could be another form of relational aggression (Ingram & Bering, 2010).

Tattling that focuses on violations of social norms could also be a method of achieving equality in the classroom for behavioral expectations. Children often find it important to inform authority figures when rules have been broken, albeit the violation of rules in not harming anyone (Ingram & Bering, 2010). This form of tattling can sometimes become time-consuming to the teachers, as the reports that are being tattled are nonimportant situations. Thus, students spend large amounts of time concerned about other children's problem behavior rather than focusing on their own behavior. Considering all of the problems associated with tattling, tootling is an effective intervention that allows students to receive attention from adults by reporting peers' behavior; however, the reported peer behavior is prosocial in nature. If students' tattling behaviors are not reinforced, through attention, one would expect the tattling behavior to decrease.

Tootling differs from positive peer reporting in several ways. The first difference between the two interventions, as stated earlier, is targeting positive praise. Positive peer reporting tends to focus on a specific student, or a few students, to receive the praise, while tootling allows all students within the classroom to be the target of praise each day. With positive peer reporting, students usually emit their praise statements at a pre-specified time within the class schedule, while tootling allows children to emit praise statements throughout the entire day. Another difference between the two interventions is that within PPR praise statements are typically emitted publically, while through tootling, praise statements are typically emitted privately, with the use of written praise

statements on notecards (Murphy & Zlomke, 2014).

Although many teachers are taught to reinforce positive behaviors, many teachers fail to do so (Skinner et al., 2000), which could be due to a wide variety of reasons such as teachers not seeing the behaviors, teachers spending their time handling inappropriate and disruptive behaviors, or not having the time or energy to reinforce positive behaviors (Skinner et al., 2000). Tootling is effective and time-efficient since it takes the responsibility of reinforcement of prosocial behaviors from the teachers and places it on a child's peers. Considering that teachers may not directly observe many of the prosocial behaviors throughout the day, peers are the most logical agent of reinforcement delivery since they are directly involved in the prosocial behaviors throughout the day (Skinner et al., 2000).

One critical component that adds to the success of tootling is the addition of a group contingency for the reinforcement component of the intervention. A group contingency is "a management system in which the delivery of a predetermined preference item or activity is provided contingent on the behavior of one or more students in a group" (Maggin, Johnson, Chafouleas, Ruberto, & Berggren, 2012, p. 626). The specific type of group contingency that is used within the tootling intervention is an interdependent group contingency, which entails the entire group working together towards a predetermined goal; once the goal is reached, all individuals within the group receive the reinforcement (Skinner, Cashwell, & Dunn, 1996). A meta-analysis of 35 interdependent group contingency studies revealed an average effect size of 2.88, which indicates that interdependent group contingencies are effective as a behavior management strategy (Little, Akin-Little, & O'Neill, 2015). Two research studies have documented

the use of interdependent group contingencies with preschoolers, which resulted in decreases in student disruptive behavior and increases in student engagement, positive teacher attention, and teacher directed instruction (Ling & Barnett, 2013; Murphy, Tehodore, Aloiso, Alric-Edwards, & Hughes, 2007).

Research has cited many advantages of interdependent group contingencies, such as time efficiency to deliver reinforcement to the whole group, increase prosocial cooperative behaviors, increase sharing of resources, and improve social contact between students. Additionally, interdependent group contingencies increase the available quantity of potential reinforcers; instead of just giving tangible reinforcers, teachers can use class-wide activities as reinforcers (Skinner, Cashwell, & Dunn, 1996). Some studies made modifications to the interdependent group contingency by randomizing the rewards that a class received following achievement of the behavioral goal. This method protects against reinforcer satiation that may occur if a class continues to work towards the same rewards (Little, Akin-Little, & O'Neill, 2015). It is important to implement varied types of reinforcers, since previous research has found that the number of tootles is high in the beginning; however, they begin to decrease as the reinforcement contingency becomes less novel (Murphy & Zlomke, 2014).

Another important aspect of the tootling intervention is the use of public posting. Public posting refers to the visual presentation of data in a publically frequented location so that students can monitor their progress as a class. Additionally public posting serves as a prompt for students to continue to reach the goal by reinforcing their peer's prosocial behaviors (Skinner et al., 2000). Previous research has found that public posting was the factor that contributed most to effects on behavior, when evaluating the effects of a multi-

component package (Van Houten, Hill, & Parsons, 1975). Several variations of visual displays have been used in past tootling research such as cotton balls in a jar, an icon climbing a ladder, or bricks on a pyramid (Murphy & Zlomke, 2014).

The training of students on the tootling intervention is a vital component that cannot be overlooked. Just as students who emit academic problems have deficits in academic skills and must be taught those skills, students who emit inappropriate behavior may solely lack the knowledge of what behavior is appropriate or what that behavior specifically looks like (Murphy & Zlomke, 2014). Therefore, the training component is used to educate children on the rules of the class, as well as the behaviors that should be reinforced through tootling (i.e., prosocial behaviors). The rules and behaviors that will be reinforced should coincide. The training teaches students what behaviors to look for in peers, as well as which behaviors they should emit if they want to receive reinforcement from their peers. Teachers can provide examples of appropriate prosocial behaviors as well as nonexamples to help children conceptualize the expectations. Training should also include practice components where students are able to practice tootling and receive feedback (Murphy & Zlomke, 2014). Training also helps students understand how they will receive rewards through the group contingency. Many studies have trained children over multiple days to ensure that the skills are mastered and generalized (Murphy & Zlomke, 2014; Shelton-Quinn, 2009; Skinner et al., 2000).

Many studies have conducted tootling with elementary-aged students, with research documenting effective results in kindergarten classrooms (Shelton-Quinn, 2009), first-grade classrooms (Shelton-Quinn, 2009), second-grade classrooms (Cashwell, Skinner, & Smith, 2001; McHugh, 2014; Shelton-Quinn, 2009), third-grade classrooms

(Cihak, Kirk, & Boon, 2009; McHugh, 2014; Morrison & Jones, 2007; Shelton-Quinn, 2009; Sherman, 2012; Torbeck, 2005), fourth-grade classrooms (Lambert, Tingstrom, Sterling, Dufrene, & Lynne, 2015; Shelton-Quinn, 2009; Sherman, 2012; Skinner, Cashwell, & Skinner, 2000), fifth-grade classrooms (Lambert et al., 2015; Sherman, 2012; Wilson, Rhymer, Landis, & Skinner, 2001), and sixth-grade classrooms (Sherman, 2012). Despite the overwhelming evidence of the effectiveness of the tootling intervention, two research studies found that tootling was not effective (Barahona, 2010; Shelton, 2002).

Originally, many studies only focused on increasing prosocial behaviors of students and documented the effectiveness of the tootling intervention increasing the number of tootles that children emitted (Cashwell et al., 2001; Skinner et al., 2000). Cihak and colleauges (2009) were the first peer-reviewed study conducted on tootling that examined the effects on incompatible behaviors with prosocial behaviors, such as disruptive behaviors. They found the intervention to be effective for third graders, both with and without disabilities. The intervention was so effective that disruptive behavior was nonexistent for 3 consecutive days at the end of the study (Cihak et al., 2009). Recent research corroborates the beneficial effects of tootling on decreasing disruptive behavior with moderate to strong effect sizes for fourth and fifth grade students (Lambert et al., 2015). Despite the ample amount of research demonstrating the effectiveness of tootling with elementary-aged students, there have been no studies conducted on the use of tootling with preschoolers.

Teacher Stress

Teacher stress has been defined as "the experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration, or depression, resulting from some aspect of their work as a teacher" (Kyriacou, 2001). Lambert, O'Donnell, Kusherman, and McCarthy (2006) examined the different aspects of the preschool environment that caused the most stress to preschool teachers. They found that children with problem behavior evoked the most stress in teachers; followed by administrative demands, children with other special needs, and classroom environmental demands. Furthermore, Lambert and colleagues (2006) concluded that teachers who experience large amounts of stress may be less capable of fostering social development in children.

Research shows that higher levels of preschool behavior problems in the fall were associated with higher levels of teacher stress in the spring (Friedman-Krauss, Raver, Morris, & Jones, 2014). Friedman-Krauss, Raver, Morris, and Jones (2014) also found a significant nonlinear relationship between teacher stress and the emotional climate of the classroom. Teachers with high levels of stress, or low levels of stress, were associated with a lower emotional climate in the classroom. However, moderate levels of stress were associated with higher classroom emotional climates. This demonstrates that not all teacher stress is bad; some stress may provide the motivation and desire to continue to work hard. However, too much stress begins to impair a teacher's ability to use executive functions, which would then decrease the teacher's ability to maintain a higher emotional climate in the classroom (Friedman-Krauss et al., 2014). Moreover, research showed more conflict in teacher-child relationships when the preschool teacher had higher levels of job stress. Therefore, the more a preschool teacher is stressed, the less

likely they will be able to form quality relationships with the students in their class (Whitaker, Dearth-Wesley, & Gooze, 2015).

Videoconferencing

Throughout the 21st century, technology has become more ubiquitous in our daily lives, making tasks simpler, time-efficient, and/or cost-effective. Technology includes phone, fax, email, or internet; however, one technology that has provided unique alternatives to face-to-face communication is videoconferencing (VC). VC provides live, interactive two-way audio and visual communication, creating an alternative to face-to-face communication. VC allows psychologists to provide therapy or diagnostic services to those in settings where there may not be high access to psychological services, such as in rural settings (Antonacci, Bloch, Saeed, Yildirim, & Talley, 2008; Gibson, Pennington, Stenhoff, & Hopper, 2010). VC is a cost-effective alternative to face-to-face services when those services would have resulted in high travel costs, lost working hours, and time away from family due to long travel distances to rural or remote communities; specifically, any travel distances longer than 22 miles results in VC being more cost-effective than face-to-face therapy (Ruskin et al., 2004).

Videoconferencing has been successfully implemented to provide effective psychological services to individuals in correctional facilities (Antonacci et al., 2008), assessment of behavioral disorders in children and adolescents (Diamond & Bloch, 2010), training of staff on discrete-trial training (Hay-Hansson & Eldevik, 2013), speech therapy with children (Grogan-Johnson, Alvares, Rowan, & Creaghead, 2010), and cognitive-behavioral therapy as a treatment for OCD (Himle et al., 2006), along with

many other psychological services. Some of the research has compared treatment through videoconferencing and treatment face-to-face and found no significant differences between the effectiveness of the treatment outcomes (Grogan-Johnson et al., 2010). Furthermore, research has demonstrated that ratings of the therapeutic relationship remain high when using videoconferencing (Backhaus et al., 2012; Himle et al., 2006), with no differences found between the therapeutic relationship achieved during videoconferencing compared to those achieved through face-to-face interaction (Germain, Marchand, Bouchard, Guay & Drouin, 2010). More importantly, many research studies have documented high levels of client satisfaction with the use of videoconferencing (Backhaus et al., 2012; Gibson et al., 2010; Grogan-Johnson et al., 2010; Himle et al., 2006; Lowden & Hostetter, 2012; Mucic, 2008); however, research suggests that females tend to have higher satisfaction with videoconferencing than males (Lowden & Hostetter, 2012). Some have suggested that videoconferencing is preferable to face-to-face therapy as the clients feel a higher sense of control during sessions, resulting in less feeling of intimidation (Simpson, 2009).

Although there are many benefits in the use of videoconferencing, at times, there are also limitations. Some limitations of videoconferencing that have been reported include problems with sound (Heafner et al., 2011), problems with quality of live-video stream (Lowden & Hostetter, 2012), and lack of visibility of all desired targets (Heafner et al., 2011). Individuals lacking familiarity with technology may report anxiety and confusion when attempting to videoconference with a psychologist (Simpson, 2009). Despite research documenting similar therapeutic alliances established in videoconferencing compared to face-to-face therapy, some individuals continue to

perceive videoconferencing to result in a reduced social presence and sense of connection towards the therapist (Simpson, 2009).

Evidenced-Based Practice of Videoconferencing

As a manner to ensure individuals are provided with evidence-based practice of videoconferencing, a task force created a set of standards and guidelines (Grady et al., 2011). The first section of the guidelines details necessary components of the physical environment and videoconferencing systems to ensure acceptable quality of videoconferencing. All videoconferencing systems should include some aspect of privacy allowed for both the provider and the patient, such as the ability for audio and video muting. Furthermore, the system should be equipped with ways in which individuals can adjust video clarity (e.g., brightness and contrast) as well audio controls (e.g., microphone and speaker volumes) (Grady et al., 2011). It has been recommended that internet bandwidths should not be lower than 384 Kbps, as lower quality results in slower transmission speeds, producing disrupted (i.e., pixelated) videoconferencing images (Yellowlees, Shore, & Roberts, 2010). Moreover, providers should wear pale, solid color shirts considering that patterned clothing requires more bandwidth to update and may provide distractions for the client (Grady et al., 2011).

Adequate therapeutic alliance is an essential quality for therapy as it allows for the client to be more forthcoming with information and emit more meaningful engagement during therapy sessions. Adjusting to the client through videoconferencing may require that the psychologist become creative and flexible with the use of gestures or more explicit verbal communication to ensure a therapeutic alliance is created. One

difficulty with videoconferencing, related to developing a good therapeutic relationship, is the use of eye contact. If the psychologist looks directly at the individual on the screen, it will appear as though they are not engaging in eye contact, as the camera is higher than the psychologist's gaze. However, should the psychologist look directly at the camera during most of the videoconferencing session, the psychologist would miss out on specific nonverbal aspects of the client's behavior. Therefore, the guidelines suggest that psychologists look halfway between the client and the camera so as to satisfy both necessary aspects during videoconferencing (Grady et al., 2011).

Videoconferencing in Schools

Schools have begun to utilize videoconferencing as a method to receive consultation and training from outside psychologists or trainers. Videoconferencing could be implemented within the schools to provide varied utility such as to support disrupted learners, for consultation, for management, for staff development, for the deaf, as well as a tool for learning (Lawson, Comber, Gage, & Cullum-Hanshaw, 2010). Research has documented schools using videoconferencing to train teachers on various skills such as how to conduct a functional analysis (Alnemary, Wallace, Symon, & Barry, 2015), training on use of evidenced-based practices with children with autism (Ruble, McGrew, Toland, Dalrymple & Jung, 2013), performance feedback on teachers' implementation of functional analyses (Machalicek, 2008), and performance feedback on teachers' implementation of preference assessments with children with autism (Machalicek et al., 2009).

Another useful aspect of videoconferencing within the schools has been

observations of new teachers and student teachers. By observing teachers through videoconferencing rather than observations directly in the classroom, it is possible to minimize distractions to the classroom, observe natural behavior of the students, as well as observe the natural behavior of the teacher (Bolton, 2010; Gibson et al., 2010; Heafner, Petty, & Hartshorne, 2011). Teachers are more likely to display their typical teaching skills when someone is not physically present within the classroom to remind them they are being observed. Research demonstrates that observing teachers through videoconferencing is as effective as observing them in-person, suggesting that videoconferencing is a cost-effective viable option to reduce observer bias (Dyke, Harding, & Liddon, 2008). A recent study has established that direct observations of students through videoconferencing were reliably equivalent to observations conducted in-vivo within the classroom (Dart, Fischer, Polakoff, Richardson, & Wright, 2015). This lends support to the use of videoconferencing, or other technology, to conduct direct observations from a distance rather than requiring the physical presence of the school psychologist, resulting in the efficiency of time and resources.

Not only is videoconferencing more cost-effective for rural schools that may not have the support of a psychologist directly in their school, but policies have made the possibilities of videoconferencing even easier. The Telecommunications Act of 1996 requires that elementary and secondary schools are offered discounted access to telecommunications for educational purposes, with discounts on telecommunication services, internet access, internal connections and basic maintenance of internal connections (Bowman, Fernandez, & Miller-Vice, 2008). Depending on the financial need of schools in poverty, they can receive discounts ranging from 20% to 90% of the

costs for telecommunication services (Bowman et al., 2008). This allows schools to obtain access to technology to facilitate the use of the videoconferencing.

There has been substantial research documenting the use of technology with preschool teachers specifically (Cabell & Downer, 2011; Downer, Locasale-Crouch, Hamre, & Pianta, 2011; Douglass, McNaughton, & Light, 2013; Gibson et al., 2010; Mashburn, Downer, Hamre, Justice, & Pianta, 2010; Pianta, Mashburn, Downer, Hamre, & Justice, 2008; Watson, 2007). Many studies document the effectiveness of consultation with preschool teachers on improving a variety of preschool child outcomes, even when the consultation is completed through videoconferencing (Cabell & Downer, 2011; Downer et al., 2011; Mashburn et al., 2010; Pianta et al., 2008). Significantly greater effects were observed for those receiving consultation through videoconferencing compared to other forms of training such as instructional videos (Mashburn et al., 2010; Pianta et al., 2008). Furthermore, the greater amount of consultation, through videoconferencing, that the preschool teachers received, resulted in an increase in gains on child outcome measures (Mashburn et al., 2010). Cabell and Downer (2011) eloquently highlight the implications from their research results: "(1) on-going, video-based consultation holds promise not only for altering teacher-child interactions, but also improving student's learning, and (2) technology allows teachers to receive intensive, effective support from a distance" (p. 316).

Purpose of the Current Study

Considering the paucity of research with preschool-aged children, the purpose of the study was to examine whether the tootling intervention could be adapted to generate

effective outcomes on the disruptive behavior in early childhood classrooms. Furthermore, the study examined whether teacher stress would be impacted by the implementation of the intervention, ensuing in less overall stress. The consultation with the teachers regarding the implementation of the tootling intervention, along with performance feedback throughout the intervention, was delivered through videoconferencing technology. The goal of the study was to demonstrate that teachers could receive training and consultation through videoconferencing, which resulted in the successful implementation of the tootling intervention. Moreover, direct observations of the classroom were conducted through technology via a one-way security camera in each classroom. The use of technology for direct observations helped to minimize the reactivity of the students and teachers during the observation, as well as providing a more naturalistic sample of their behavior.

The following research questions were established based off the purpose of the study:

1. Is there a functional relationship between the tootling intervention and a decrease in disruptive behavior and an increase in on-task behavior?

   It was hypothesized that the tootling intervention would result in significant decreases in disruptive behavior, as measured by the direct behavior ratings by teachers, and a significant increase in on-task behavior, as measured by direct observations. It was also hypothesized that there would be a decrease in level between the baseline and treatment phase.

2. Does the tootling intervention decrease the amount of tattling emitted by the students in the preschool classroom?

It was hypothesized that the tootling intervention would create a reduction in the amount of tattling, measured through the daily frequency counts by teachers. The decrease would be evident between baseline and treatment phases by a significant change in the level of the data.

3. Once the tootling intervention had been withdrawn from the classroom, would the reductions in disruptive behavior be maintained 4 weeks later?

   It was hypothesized that the positive effects on disruptive behavior observed due to the tootling intervention would be maintained the following 4 weeks after the intervention had been discontinued, as measured by direct observations and direct behavior ratings.

4. Does the tootling intervention result in positive outcomes on the behavior of the preschool students that leads to a reduction in the level of teacher stress?

   It was hypothesized that the positive effects from the tootling intervention would reduce the teachers' overall levels of stress as measured by the Teacher Stress Inventory.

5. Did the teachers involved in the study find the tootling intervention to be an acceptable treatment for the class-wide behavior problems?

   It was hypothesized that the teachers would report high treatment acceptability for use of the tootling intervention within the use of their classroom, as measured by the Behavior Intervention Rating Scale.

6. Did the teachers involved in the study report high levels of satisfaction with the use of videoconferencing within the study?

   It was hypothesized that the teachers would report high satisfaction with

the use of technology for consultation purposes and direct observations as measured by the Fast Form of the Technology Acceptance Model and the Distance Communication Comfort Scale.

CHAPTER 2

METHOD

Participants

The participants included four lead preschool teachers who teach 4- and 5-year-old children in a nonprofit early childhood program. All teachers were female with age ranging from 23-34 years old, with an average of 29 years old. The number of years of experience ranged from 2.5 years to 12 years for the teachers, with an average of 6.4 years of teaching experience. Three of the teachers' highest level of education was a Bachelor's degree, while the teacher of the second classroom had completed her Master's degree. Three of the classrooms also included paraprofessionals who assisted the lead preschool teachers throughout the day; however, the paraprofessionals did not collect any of the data or complete the pre and post questionnaires.

The participants were also 95 4- and 5-year-old children. The first classroom had 21 children participate, with an average of 14 children at class each day. The second classroom had 17 children participate with an average of 12 children each day. The third classroom had 44 children participate with an average of 28 children each day. The fourth classroom had 13 children participate with an average of 10 students each day. The preschool classrooms were located within four separate cities within the Midwest.

Prior to contacting the teachers to participate in the study, institutional approval

was sought from the Executive Director of the nonprofit early childhood program. Furthermore, the study received approval from the University of Utah's institutional review board regarding the acceptability of the proposed research with children. Prior to initiation of the research, the researchers requested written consent by all participating teachers, to ensure their voluntary participation within the study. Additionally, written consent was obtained from each child's parent to provide permission for the student to be a part of the intervention.

Measures

Direct Behavior Ratings

Direct Behavior Ratings (DBR) is a hybrid method for assessing behavior that incorporates aspects of systematic direct observations and rating scales (Christ, Riley-Tillman, Chafouleas, & Jaffrey, 2011). Direct behavior ratings have been used as a single item scale (i.e., DBR-SIS) and also as a multiple item scale (i.e., DBR-MIS). Each scale consists of integers between 0 and 10 where 0 would indicate that the behavior occurred 0% of the time during the observation period, 5 refers to 50% of the time and 10 corresponds with 100% of the time the behavior occurred. Considering the ease with which DBRs can be completed, it allows for efficient progress monitoring of a child's behavior daily or weekly. Research has established robust results for interrater reliability as well as criterion-related validity for DBR-SIS, when used to assess globally defined behaviors such as disruptive behavior. Criterion-related validity coefficients, with systematic direct observations as the criterion, were large (range = .67 to .78). Inter-rater reliability of DBR-SIS was moderate to strong for each behavior target (range = .56 to

.81; Christ, Riley-Tillman, Chafouleas, & Jaffrey, 2011). Research has found that when rating disruptive behaviors, rater accuracy improved when feedback and practice were included in the training of teachers on using DBRs (Harrison, Riley-Tillman, & Chafouleas, 2014). Research has identified DBRs to be successful when completed in a class-wide format and were sensitive to classroom-level intervention effects (Riley-Tillman, Methe, & Weegar, 2009).

Direct Behavior Ratings were completed daily by the lead teacher following circle time. The DBR rating was based off of the entire class' behavior emitted during circle time. The DBR rating targeted the level of disruptive or inappropriate behavior emitted by the class. There were differences in the latency of when the DBR was completed between all classrooms, as it was not controlled as to whether it was completed immediately after circle time, a mid-day, or at the end of the preschool day.

Direct Observations

Considering that direct observations have been labeled as the 'gold standard' for behavioral assessment within the schools (Gresham, 2015; Riley-Tillman, Chafouleas, Sassu, Chanese, & Glazer, 2008) direct observations were employed within this study. Data were collected using momentary time sampling. Every 15 seconds, a new child was observed to obtain an overall sample of class-wide on-task behavior, with the pattern of observations happening in a predetermined fixed order. Class-wide direct observations, following the method described above, were conducted during baseline and throughout the intervention to determine the level of class-wide on-task behavior during circle time. Research demonstrates that when conducting class-wide observations as a whole group,

lower levels of on-task behavior were reported in comparison to the criterion; thus, conducting rotating observations individually for each child results in the closest approximation to the criterion (Briesch, Hemphill, Volpe, & Daniels, 2015). The following operational definition for on-task behavior was created:

1. Student excessively moving one of their body parts in a distracting way (e.g., rocking back and forth) even while looking at the teacher. Do not include as off-task if the teacher is requesting the body movements.
2. Student is not looking at the teacher while the teacher is talking. Do not include this as off-task if the student is looking at a different speaker such as another child, while they are talking to the whole class
3. Student is talking to a student next to them during a time when they should not be talking.
4. Student is moving around on the circle time rug after everyone has settled into one position on the rug. An example is the child is constantly changing positions on the rug to find a different spot to sit or the child stands up and leaves the circle time area. Do not record the child as off-task if they get up to get a Kleenex.
5. Student is not participating in the circle time song by either doing the actions or singing. They do not need to do both of them but they need to do one or they are off-task.
6. Student yells out during a time when the teacher is not calling for choral responding.
7. Student is lying down or sitting high up on their knees.
8. Student is not keeping their hands to themselves during a time when they should

be.

Frequency of Tattling

The frequency of tattling incidences were calculated on a daily basis, by the teachers, using a manual hand tally clicker (i.e., frequency count event recording). Teachers recorded the number of tattles at the end of the preschool class and reset the clicker to zero for the following day.

Frequency of Tootles

The frequency of tootling was calculated based off of the tootle tokens that are placed within the jar. Each color of tootle token corresponded with a different type of prosocial behavior. A red token corresponded with taking turns with friends when playing. The blue token signified the prosocial behavior of inviting new friends to play. The green token corresponded with using gentle hands when playing with friends. The yellow token corresponded with using kind words towards friends. The orange token represented helping other friends. Each time the class reached the designated criterion to receive a reinforcer, the teacher recorded the number of days it took to reach the goal as well as the quantity of tokens in each color, to provide data on the frequency of each specific prosocial behavior.

Teacher Stress Inventory

The Teacher Stress Inventory (TSI) is a 49-item, 10-factor instrument that assesses the level of occupational stress in teachers; however, only 5 of the factors look at

the source of the stress. All items are rated on a 5-point Likert scale with 1 representing "not noticeable" and 5 representing "extremely noticeable." The scale has been normed with 3,401 elementary, middle school, and secondary teachers. The Teacher Stress Inventory includes 5 scales that measure occupational stress: Time Management (e.g., I easily over-commit myself), Work-Related Stressors (e.g., There is too much work to do), Professional Distress (e.g., I lack promotion and/or advancement opportunities), Discipline and Motivation (e.g., I feel frustrated because of discipline problems in my classroom), and Professional Investment (e.g., I am not emotionally/intellectually stimulated on the job).

The preschool teachers completed the 5 scales on the Teacher Stress Inventory prior to implementing the tootling intervention and following implementation. Internal consistency was acceptable for all scales with an alpha of .86 for Discipline and Motivation, an alpha of .75 for Professional Investment, an alpha of .83 for Time Management, an alpha of .82 for Professional Distress, and an alpha of .80 for Work-Related Stressors (Fimian & Fastenau, 1990). Test-retest reliability after 2 weeks for the Discipline and Motivation scale was .90, .81 for the Time Management scale, .93 for the Professional Distress scale, .93 for the Professional Investment scale, and .87 for the Work-Related Stressors scale (Fimian, 1988).

Fast Form of the Technology Acceptance Model

The Fast Form of the Technology Acceptance Model (FF-TAM, Chin, Johnson, & Schwarz, 2008) is a measure that is based off of the Technology Acceptance Model (TAM, Davis, 1989). This measure was designed to evaluate the perceived usefulness

and ease of use of the technology that is used within the study. Each lead teacher completed the FF-TAM after the implementation of the intervention through videoconferencing to determine their perceived usefulness of the videoconferencing component and the ease of use of videoconferencing.

The original TAM measure utilized Likert scales to rate the 12 technology acceptance questions. The Fast Form version of the TAM provides a quicker method to measure technology acceptance through the use of semantic differential scales rather than Likert scales. While a Likert version of the a question may be "using this system enhances my effectiveness" with rating options varying from *Strongly Agree* to *Strongly Disagree*, the semantic differential scales version of the question would have a statement stem (i.e., this system…) and rating options (i.e., ineffective to effective) expressed by numbers 1 to 7. Research has demonstrated that the FF-TAM was faster than the completion time for the TAM, resulting in about 40% reduction in completion time. Internal consistency for the Usefulness subscale on the FF-TAM is .93 which is higher than the internal consistency of .92 for this subscale on the Original TAM. Internal consistency for the Ease of Use subscale on the FF-TAM is .94, which is similar to this subscale's internal consistency of .95 on the Original TAM (Chin, Johnson, & Schwarz, 2008).

Distance Communication Comfort Scale

The Distance Communication Comfort Scale (DCCS) was utilized to evaluate each teacher's level of comfort communicating with a consultant through different methods of communication such as telephone, videoconferencing, or face-to-face

interaction. Each teacher evaluated her comfort following the completion of the intervention. The measure consisted of 27 questions that will be rated on a Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Factor analysis revealed that the scale is composed of three factors: comfort with face-to-face communication, comfort with two-way video communication, and comfort with two-way audio communication. Measures of internal consistency indicate an alpha of .82 for two-way video communication, .81 for two-way audio communication, and .88 for face-to-face communication. Discriminant validity was established between the DCCS and the NEO-FFI, which assesses the most common 5 personality traits. Although there was some correlation between the personality traits and levels of comfort with the three methods of communication (i.e., a correlation between extraversion and face-to-face communication or two-way video communication) the correlations were small and did not exceed a correlation .26, thus providing evidence for discriminant validity (Schneider, 2001).

Behavior Intervention Rating Scale

The Behavior Intervention Rating Scale (BIRS) was used to measure teacher satisfaction with the intervention that was implemented and their perceived level of intervention effectiveness. Each lead teacher completed this measure of treatment acceptability following the completion of the intervention in her classroom. The measure includes 24 questions that were rated using a Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The measure consists of three different factors: Acceptability (e.g., this intervention was a fair way to handle the child's problem behaviors), Effectiveness (e.g., the intervention would produce a lasting improvement in the child's behavior), and Time

of Effectiveness (e.g., soon after using the intervention the teacher would notice a positive change in the child's behavior). The total scaled score produced high internal consistency of .97. The Acceptability factor yielded an internal consistency alpha of .97, .92 for the Effectiveness factor, and .87 for the Time of Effectiveness factor (Elliot & Treuting, 1991).

Procedures

Baseline

Prior to initiation of the intervention, each lead teacher completed the Teacher Stress Inventory to gauge their level of occupational stress prior to implementation of a behavior management intervention in their classroom. Data were collected daily using the DBR to record the level of disruptive or problematic behavior during circle time. In addition, the teachers recorded the total number of tattles emitted by the students during the morning class period. The researchers completed direct observations throughout baseline, to capture the class-wide on-task rates prior to the intervention implementation. Teachers were instructed to continue implementing instructional practices and behavior management in the same manner as which they always do.

Consultation

Teachers received consultation through videoconferencing on the tootling intervention. The initial consultation session covered the necessary data collection methods to conduct during baseline. The training included practice and feedback on conducting direct behavior ratings.

During the second consultation session, the primary researcher covered the necessary procedures for the tootling intervention (i.e., which specific tootle chips to give when) and provided the teacher with practice in how to train the students on the tootling intervention. Examples and nonexamples were utilized during the consultation prior to the implementation of the intervention. The consultant modeled training the students on the intervention and allowed opportunities for the teacher to practice the skills. The two initial consultation sessions happened through videoconferencing for three of the teachers; however, one of the teachers was unable to navigate the videoconferencing technology so consultation with her was completed through the telephone.

Additionally, throughout the implementation of the intervention, the consultant provided weekly consultation through text messaging or email to provide performance feedback regarding treatment integrity for the implementation of tootling, as well as answer any questions that the teacher may have during the intervention. Research has found that performance feedback is moderately effective in improving treatment integrity and helps to minimize the general tendency for diminishing integrity following the initial intervention training (Solomon, Klein, & Politylo, 2012). Teachers also provided data through text messaging or email daily to the researcher, which allowed for daily communication if there were any difficulties with the intervention.

Training

Teachers trained the students on the tootling program over the course of 3 days, around 10-15 minutes per session. Not only has research shown that it is useful to have multiple training sessions (Murphy & Zlomke, 2014), it is also necessary when

implementing the training session with preschoolers, as not every preschool child comes to school every day of the week. The hope was that every child received the training at least once or twice throughout those 3 days. Teachers were provided with a script for training the students and a themed puppet (i.e., Tootling Tom, the monkey) that was the mascot for the tootling intervention and helped in the training of the children. The scripts for all 3 days of training are provided in Appendix G.

An essential component is that the teacher discussed the classroom rules, which coincided with the behaviors that students should be noticing in their classmates. These rules were placed in a highly visible area where all students can refer back to them. The puppet was used to provide examples of appropriate prosocial behavior and nonexamples of behaviors that the children would not want to tootle. In other words, the teacher explained which peers' behaviors we would ignore and which behaviors we would provide tootles for. The teacher also provided opportunities for all of the students to practice tootling. The teacher also described how the students could receive reinforcement as a class. It was emphasized that they all need to work together to receive the class reward. During the training session, they brainstormed some ideas of special activities or treats that they wanted to have for their class reward.

Intervention

Due to the developmental level of the preschool children, the tootling intervention was adapted. At the beginning of the day, at morning circle time, the teacher reminded the students that they could receive tootle tokens throughout the day that could be exchanged for a classroom reward. The teacher also reviewed the classroom rules every

morning at circle time. Each teacher had a tootle token tower that was empty. Refer to Appendix J for a pictorial description of the tootle token tower. Every time a child tootled, they reported to the teacher the behavior they noticed another peer emitting. The verbal reporting of the prosocial behavior was used in place of writing the tootle on a piece of paper, as most preschoolers are not proficient writers. The child got a tootle token to place in the token tower. The color of the tootle token corresponded with the specific behavior observed. The teachers would also walk around the classroom, listening for students who were tootling and provided them with a tootle token. Once the class reached the criterion for the necessary number of tootles, they received their class reward. Following, the reward the token tower was emptied out and the class started back at zero. The criterion for the reward gradually became more difficult to achieve, in order to produce a longer period of days in which appropriate behavior must be observed to receive the reward. The gradual increase in criterion was designed to help facilitate maintenance effects once the intervention was removed. Each baseline level of tootles was recorded after 3 days of implementation of the tootling intervention in each class. Each class automatically received a group reinforcer after the first 3 days of the intervention. The following criteria for reinforcement were determined by adding their baseline number of tootles plus a 15% increase. This 15% increase was going to be added after each criterion was achieved. Consistent with past research (Murphy & Zlomke, 2014), the number of tootles emitted by the preschoolers decreased as the intervention continued. It appeared that the initial excitement from the intervention inflated the rates of baseline to higher levels; therefore, it would have taken the children too long to receive reinforcement if the next criterion was baseline rates plus a 15%

increase. Therefore, it was determined that based on behavioral principles of frequent reinforcement to strengthen the behavior, criteria were determined with the teacher to ensure that the children would receive the group reward between 4-10 days of tootling. Some of the rewards that were given were sock party, face painting, ice cream party, popsicles, bring cuddly to school, extra gym time, or a small trinket.

Each day, around the transition period, the teacher elicited a few verbal examples of prosocial behaviors that students observed throughout the day. This aided in a reminder of the classroom rules as well as provided additional reinforcement for the tootling behaviors. Moreover, it provided additional reinforcement for the students who emitted the prosocial behaviors.

Maintenance

Following 4 weeks after the intervention had been discontinued, five follow-up probes were conducted using direct observations of disruptive behavior and a direct behavior rating completed by the teacher.

Design and Data Analysis

A multiple-baseline across classrooms was used to analyze the effectiveness of the tootling intervention on the disruptive behavior of the students in the classroom, the on-task behavior of the entire class, as well as the number of tattles within the classroom. The effects of the intervention were analyzed using the Tau-U method without baseline correction for calculating effect sizes (Parker, Vannest, Davis, & Sauber, 2011). Tau-U is a more conservation method for evaluating effect sizes with single-case research than

Nonoverlapping of All Pairs (NAP) because it controls for the baseline trends when estimating the nonoverlap of data points between phases A and B (Dart, Collins, Klingbeil, & McKinley, 2014), and shows better discriminability and sensitivity than percentage of nonoverlapping Data (PND), percentage of data exceeding the mean trend (PEM-T), and improvement rate difference (IRD; Rakap, 2015). "Tau is a single-case effect size with a range of -1.0 to 1.0. Scores of zero indicate no effect, while a positive score indicates improvement in the data, and a negative score indicates deterioration of the data" (Neely et al., 2016, p. 41). Research has identified some benchmarks in regard to Tau-U scores. A Tau-U of 0.20 improvement is considered a small change, 0.20 to 0.60 is considered a moderate change, 0.60 to 0.80 is considered a large change and anything above 0.80 is a very large change (Vannest & Ninci, 2015).

Furthermore, the results from the Teacher Stress Inventory, TAM-FF, the DCCS, and the BIRS were analyzed using descriptive statistics (i.e., mean and standard deviation).

Treatment Integrity

Treatment integrity was examined using direct observation of the teachers, a daily procedural checklist, and the permanent products obtained from using the tootle tokens. During the direct observations of the class behavior during circle time, the observer recorded whether the teacher reminded the children how they could receive tokens and reviewed the classroom rules to remind the children what behaviors could be tootled. Furthermore, the permanent products of tootle tokens within the token tower aided in the evaluation of treatment integrity. Finally, the classrooms were observed 30% of the time

during the transition circle time to see if teachers were providing opportunities for children to give examples of prosocial behavior that they saw throughout the day. Intervention steps that had to be carried out by the teacher included a) reminding children in the morning at circle time that they could receive tokens for noticing other children's prosocial behavior, b) reviewing the classroom rules at morning circle time, c) providing tootle tokens when children came to tell the teacher they saw a prosocial behavior that their peer emitted, d) providing tootle tokens when walking around the classroom and hearing peers report prosocial behaviors to other peers, e) reviewing a few examples of the prosocial behaviors observed during the day at the transition circle time, and f) providing the class-wide reward when the designated goal had been met.

Observer Training and Interobserver Agreement

Research assistants who helped conduct the direct observations of the teacher's and children's behavior were trained on the operational definitions for the behavior observed during direct observations. The training consisted of direct instruction on the operational definitions of the behavior to be observed, followed by modeling by the principal investigator and rehearsal by the trainees. Interobserver agreement (IOA) was collected for 30% of the direct observations sessions. IOA was calculated by dividing the total number of agreements by the total number of agreements and disagreements, multiplied by 100 (Cooper, Heron, & Heward, 2007).

Seven observers helped conduct all of the direct observations in three preschool classrooms through live feed one-way security camera footage. In order to ensure high interobserver agreement, all observers were trained on how to conduct the direct

observations and what to look for in on-task behavior for children in preschool. When the class was situated in a circle format, the observer was to start with the child on the left side of the teacher and continue around the circle observing a different child every 15 seconds. When the class was seated in a group format or cluster, the observers were instructed to create invisible rows to help them remember which children they had already observed. They were to start with the closest "row" of children starting with the child that is to the farthest left of the teacher. During each 15-second interval, the observers continued down the row to each new child. When the row ended, they went to the second row, starting with the farthest student to the left of the teacher. Observers were instructed to follow the pattern to the best of their ability to ease in the process of class-wide direct observations. During interobserver agreement sessions, one observer would be in charge of labeling the next child that would be observed (e.g., boy with green shirt and blue pants) to ensure that both observers were looking at the same child. This communication during interobserver agreement sessions occurred in person or over the phone. After each child was identified for each 15-second interval, both observers would independently record their observation of on-task or off-task for each child.

Due to the unique nature of describing on-task behavior for preschool students, there were many minitraining sessions to answer specific questions regarding whether specific behaviors were considered on-task or off-task. The following operational definition for off-task behaviors for preschool children during circle time was then created and distributed to observers. Any of the following behaviors would constitute the child being considered off-task:

9. Student excessively moving one of their body parts in a distracting way (e.g.,

rocking back and forth) even while looking at the teacher. Do not include as off-task if the teacher is requesting the body movements.

10. Student is not looking at the teacher while the teacher is talking. Do not include this as off-task if the student is looking at a different speaker such as another child, while they are talking to the whole class
11. Student is talking to a student next to them during a time when they should not be talking.
12. Student is moving around on the circle time rug after everyone has settled into one position on the rug. An example is the child is constantly changing positions on the rug to find a different spot to sit or the child stands up and leaves the circle time area. Do not record the child as off-task if they get up to get a Kleenex.
13. Student is not participating in the circle time song by either doing the actions or singing. They do not need to do both of them but they need to do one or they are off-task.
14. Student yells out during a time when the teacher is not calling for choral responding.
15. Student is lying down or sitting high up on their knees.
16. Student is not keeping their hands to themselves during a time when they should be.

CHAPTER 3

RESULTS

This study evaluated whether the tootling intervention could be adapted to generate effective outcomes on the disruptive behavior in early childhood classrooms and reduce overall classroom tattling. Furthermore, the study examined whether teacher stress was impacted by the implementation of the intervention, ensuing in less overall stress. The consultation with the teachers regarding the implementation of the tootling intervention, along with performance feedback throughout the intervention, were delivered through technology (i.e., videoconferencing, email, or text message). Additionally, the researchers conducted direct observations of the children's disruptive behavior in the classroom through technology via a one-way security camera in each classroom.

The implementation of the tootling intervention within these preschool classrooms increased the children's recognition of peers' prosocial behaviors. Figure 1 represents the total number of tootles per classroom rule that was recorded per class. The five classroom rules were using gentle hands, sharing toys with friends, inviting new friends to play, using kind words, and helping other friends. Figure 2 demonstrates the average number of tootles per person in the class per day throughout the tootling intervention. Overall, the average number of tootles per person per day decreased

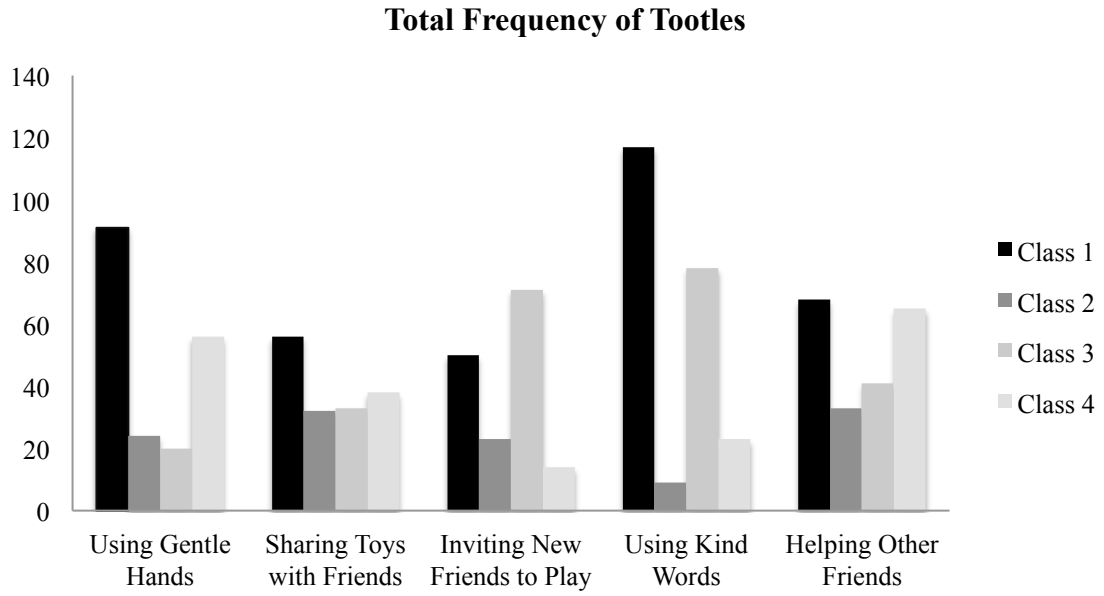


Figure 1: Total Frequency of Tootles

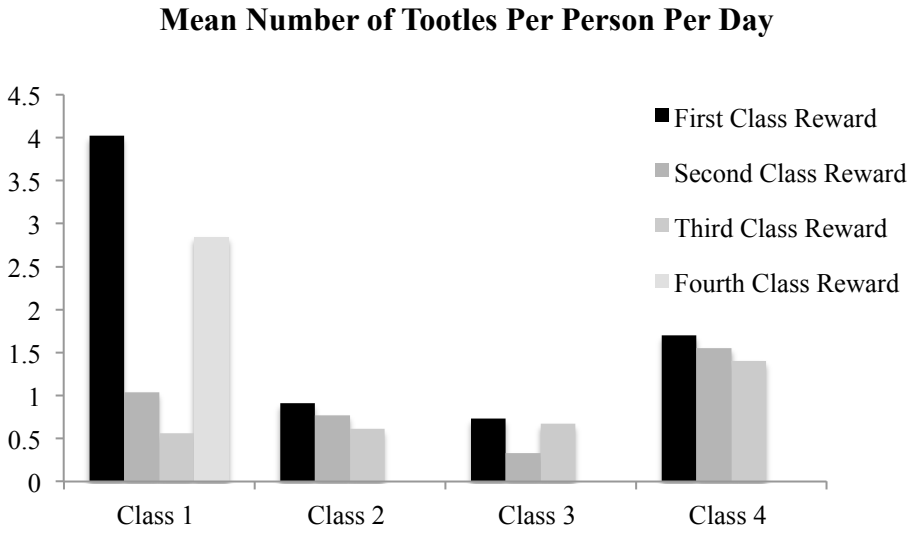


Figure 2: Mean Number of Tootles Per Person Per Day

throughout the study.

Research Question 1

Is there a functional relationship between the tootling intervention and a decrease in disruptive behavior?

A concurrent multiple baseline design across the four preschool classrooms was conducted to determine if there was a functional relationship between implementing the tootling intervention and a decrease in disruptive behavior, as measured through direct behavior ratings by the classroom teacher during circle time. Figure 3 depicts the results from the concurrent multiple baseline design. The mean effect size of the tootling intervention on disruptive behavior, through direct behavior ratings, was associated with a small effect (Tau-U = 0.17, CI_{95} [0.00, 0.40]). In other words, overall, there was a 17% decrease, on average, in disruptive behavior across all four classrooms.

During baseline for the first classroom, visual analysis showed there was an increasing trend in disruptive behavior, as rated by the teacher. After the implementation of the tootling intervention, there was an immediate decrease in disruptive behavior, with a slight decreasing trend across sessions in the intervention phase. The effect size of the tootling intervention on disruptive behavior, through direct behavior ratings in the first classroom, was associated with a moderate effect (Tau-U = 0.50, CI_{90} = [0.05, 0.95]). In other words, there was a 50% decrease in disruptive behavior in the first classroom once the tootling intervention was implemented.

During baseline for the second classroom, there was an increasing trend in disruptive behavior that stabled around a direct behavior rating of six. After

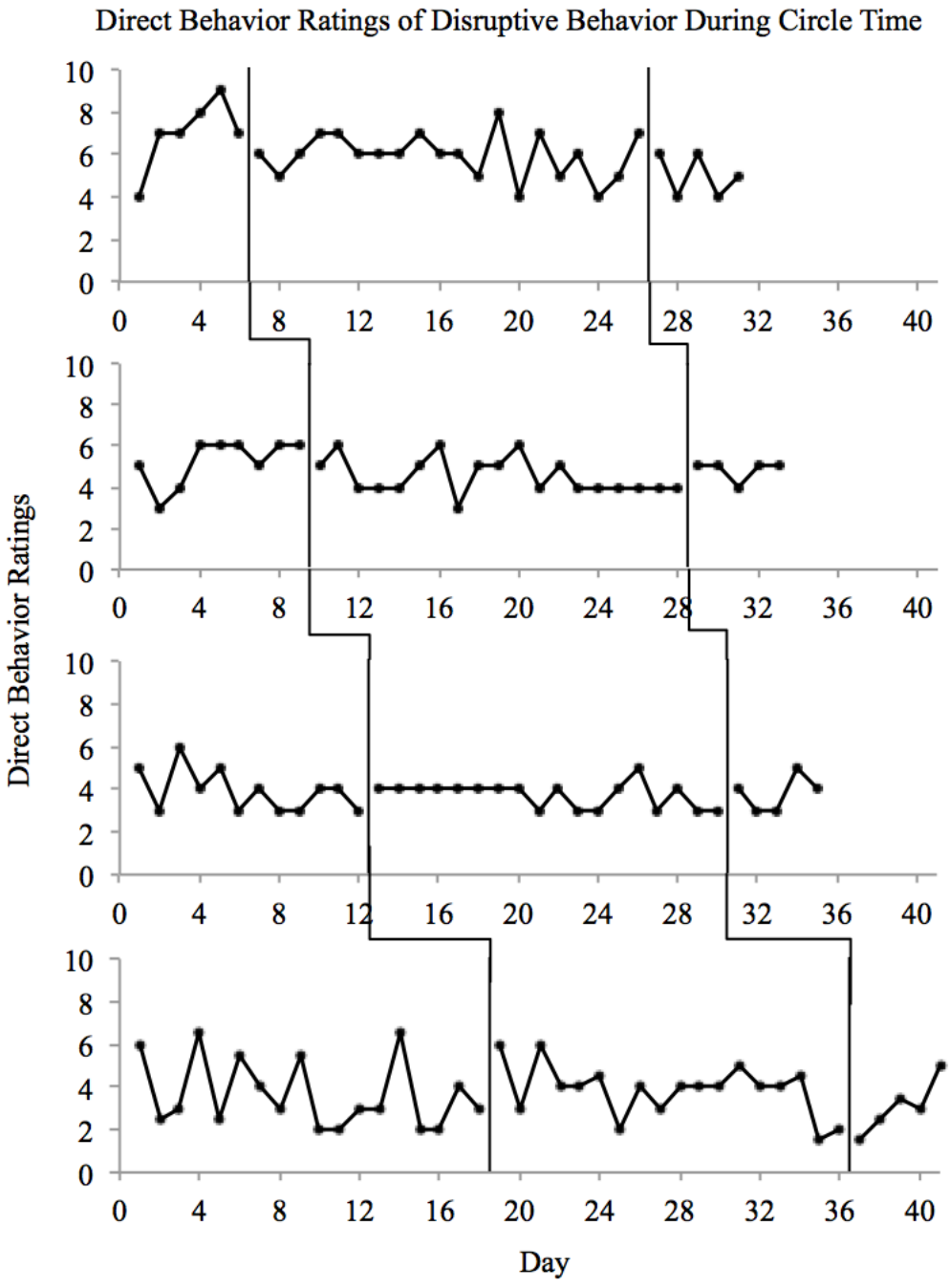


Figure 3. Direct Behavior Ratings on Classwide Disruptive Behavior During Circle Time

implementation of the tootling intervention, there was an overall steady reduction in disruptive behavior, as reported by the teacher; stabilizing around a direct behavior rating of four, by the end of the intervention phase. The effect size of the tootling intervention on disruptive behavior, through direct behavior ratings in the second classroom, was associated with a moderate effect (Tau-U = 0.42, CI_{90} = [0.02, 0.81]). In other words, there was a 42% decrease in disruptive behavior in the second classroom once the tootling intervention was implemented.

During baseline in the third classroom, the disruptive behavior during circle time was very variable across sessions; however, after implementation of the tootling intervention, there was stability in teacher ratings of disruptive behavior across sessions. There was no significant effect of the tootling intervention on disruptive behavior, through direct behavior ratings in the third classroom (Tau-U = 0.06, CI_{90} = [0.00, 0.42]). In other words, there was a 6% decrease in disruptive behavior once the tootling intervention was implemented.

During the baseline phase in the fourth classroom, visual analysis showed there was variability across sessions. After implementation of the tootling intervention, the disruptive behavior in classroom four became more stable. The intervention reduced the variability of disruptive behavior; however, the level of disruptive behavior was maintained from baseline to intervention phase. There was an increase in disruptive behavior after implementation of the tootling intervention (Tau-U = 0.15, CI_{90} = [0.00, 0.48]). In other words, there was a 15% increase in disruptive behavior once the tootling intervention was implemented in the fourth classroom.

Additional to the teacher reported direct behavior ratings, daily direct

observations were conducted to aid in determining if there is a functional relationship between implementing the tootling intervention and a decrease in disruptive behavior, as measured through on-task behavior. Figure 4 depicts the results from the concurrent multiple baseline design across classrooms for direct observation data. The mean effect size of the tootling intervention on class-wide on-task behavior was associated with a small effect (Tau-U = 0.12, CI_{95} = [0.00, 0.39]). In other words, on average, there was a 12% increase in on-task behaviors across all three preschool classrooms once the tootling intervention was implemented.

Direct observations during baseline in the first classroom reported variable levels of on-task behavior. After implementation of the tootling intervention, the data became more stable across sessions with a slight increasing trend in on-task behavior. The effect size of the tootling intervention on class-wide on-task behavior in the first classroom was associated with a moderate effect (Tau-U = 0.24, CI_{90} = [0.00, 0.69]). In other words, there was 24% increase in on-task behavior after the implementation of the tootling intervention.

During baseline in the second classroom, there was no change in trend with variability in on-task behavior across sessions. After implementation of the tootling intervention, there was an increase in variability across sessions with stability towards the end of the intervention phase. The effect of tootling on the class-wide on-task behavior in the second classroom was associated with a moderate effect (Tau-U = 0.37, CI_{90} = [0.00, 0.77]). In other words, after implementation of the tootling intervention, there was a 37% decrease in on-task behavior in the second classroom.

During baseline in the third classroom, visual analysis showed the on-task

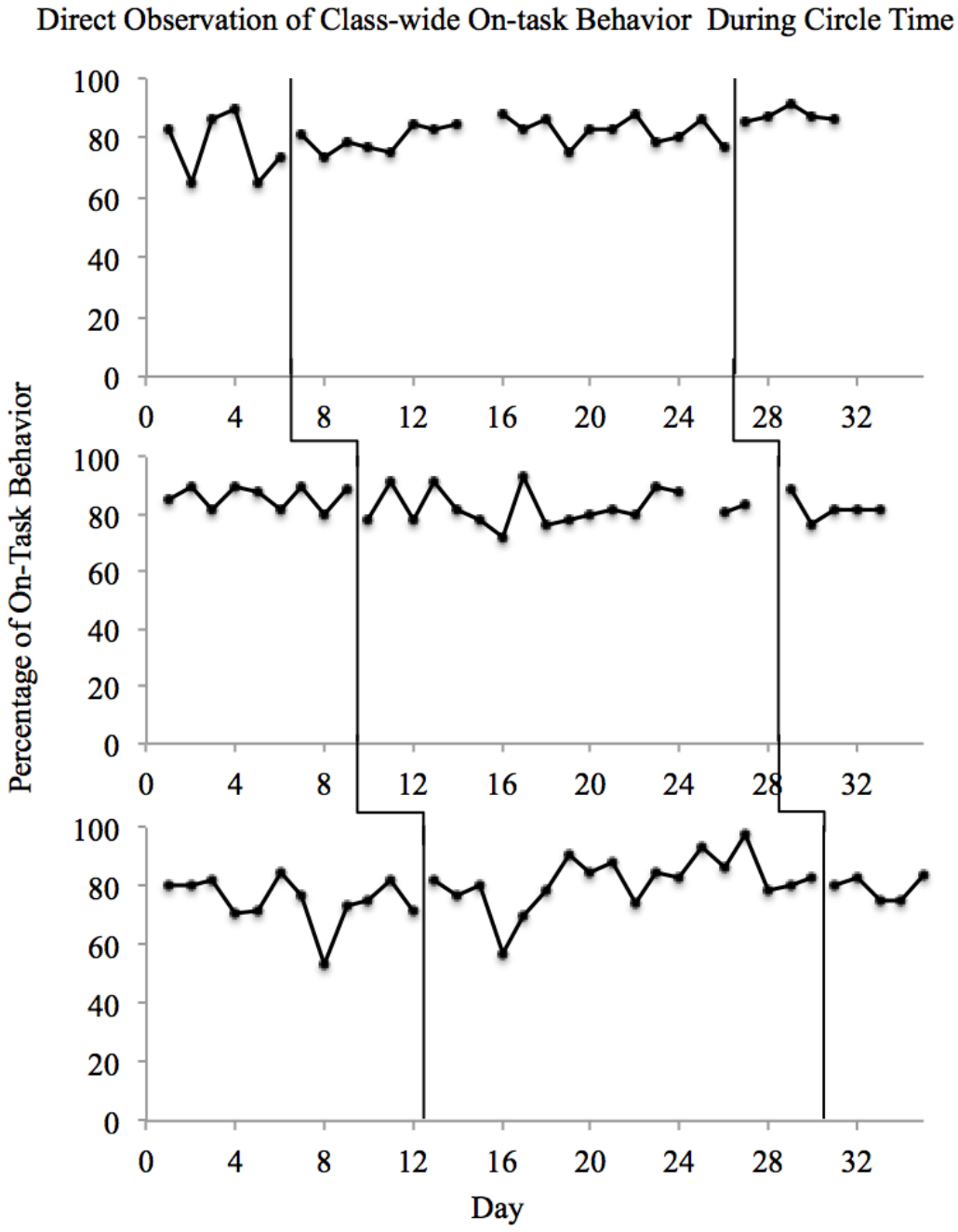


Figure 4. Percentage of On-Task Class-wide Behavior During Circle Time

behavior was highly variable across sessions. After implementation of the tootling intervention, the data remained variable; however, there was a slight increasing trend in the class-wide on-task behavior. The effect size of the tootling intervention on class-wide on-task behavior in the third classroom was associated with a moderate effect (Tau-U = 0.46, CI_{90} = [0.10, 0.82]). In other words, there was a 46% increase in on-task behavior once the tootling intervention was implemented in the third classroom. Direct observations were not conducted in the fourth classroom due to technology issues.

Research Question 2

Did the tootling intervention decrease the amount of tattling emitted by the students in the preschool classroom?

A concurrent multiple baseline design across the four preschool classrooms was conducted to determine whether the tootling intervention decreased the amount of tattling emitted in the preschool classroom. Figure 5 displays the results for the multiple baseline design. The mean effect size of the tootling intervention on tattling behavior was associated with a moderate effect (Tau-U = 0.50, CI_{95} = [0.27, 0.73]). In other words, on average, there was a 50% decrease in tattling behavior, across all four classrooms, once the tootling intervention was implemented.

For the first preschool classroom during baseline, visual analysis shows there was an increase in the trend of tattling across sessions. After the implementation of tootling there was an immediate decrease in tattling that was maintained across sessions. The effect size of the tootling intervention on tattling behavior in the first classroom was associated with a very large effect (Tau-U = 0.83, CI_{90} = [0.38, 1.00]). In other words,

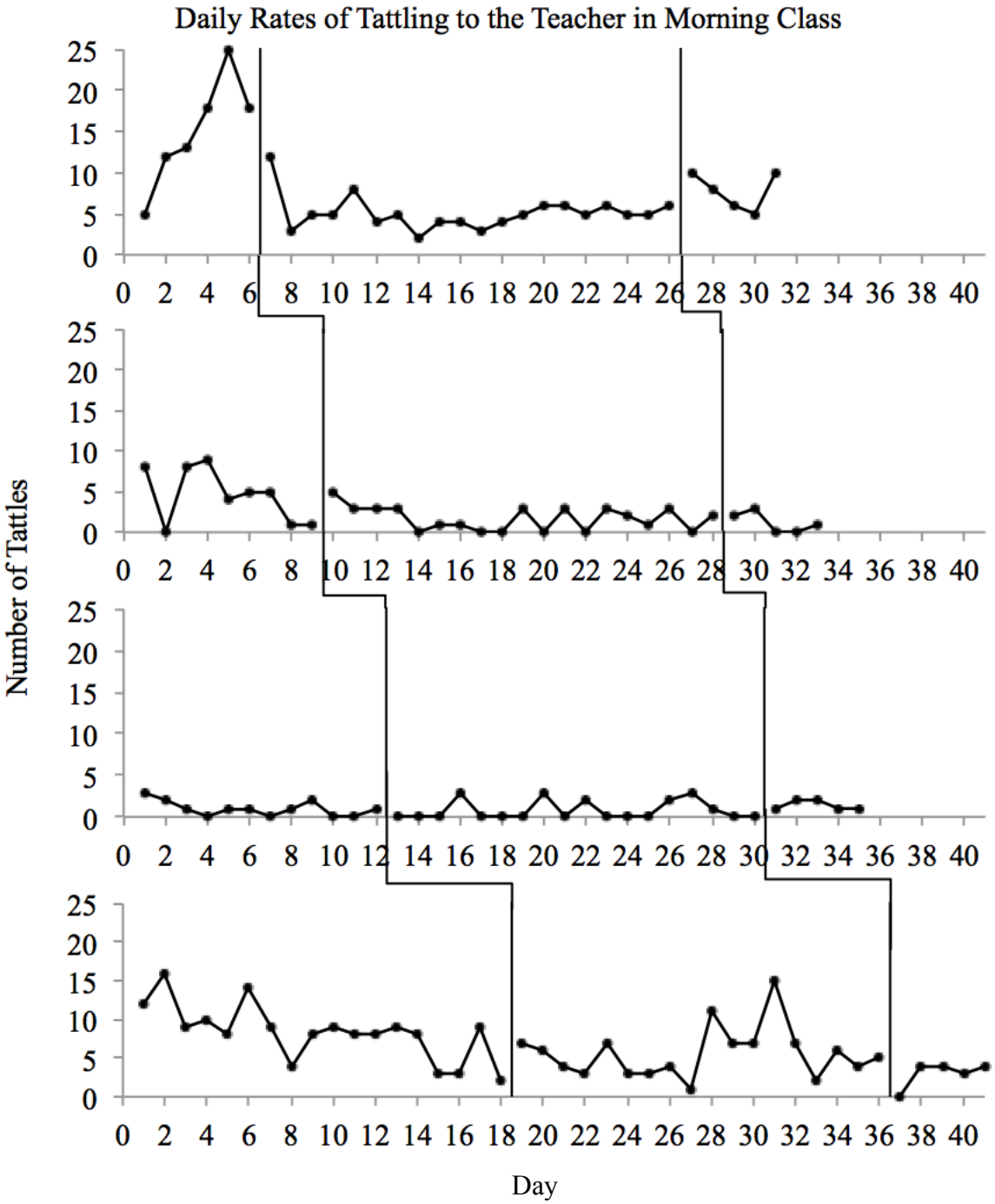


Figure 5. Daily Rates of Tattling in Preschool Morning Class

there was an 83% reduction in tattling behavior after the tootling intervention was implemented.

During baseline in the second classroom, visual analysis showed there was a decreasing trend in tattling. Despite this decreasing trend, the intervention was still implemented considering that the data on tattles were not the primary measure used to inform treatment implementation. Upon implementation of the tootling intervention, there was an initial spike in tattling, followed by a steady decrease throughout the intervention implementation. All daily tattle counts remained at or below three tattles, once the intervention was implemented with variability throughout the days of the week. The effect size of the tootling intervention on tattling behavior in the second classroom was associated with a moderate effect (Tau-U = 0.52, CI_{90} = [0.13, 0.92]). In other words, there was a 52% decrease in tattling behavior once the tootling intervention was implemented in the classroom.

Visual analysis in the third classroom demonstrated low levels of tattles during baseline, which were maintained across sessions once the tootling intervention was implemented. There are more days with zero tattles during the intervention phase than during baseline. The effect size of the tootling intervention on tattling behavior in the third classroom was associated with a moderate effect (Tau-U = 0.21, CI_{90} = [0.00, 0.57]). In other words, there was a 21% reduction in tattling behavior in the third classroom, once the tootling intervention was implemented.

Visual analysis showed that the fourth preschool classroom had a decreasing trend in tattling during baseline. This trend continued to decrease once the tootling intervention was implemented; however, there were a few days when tattling

momentarily increased to higher levels, but reduced to the overall level that was observed during the intervention phase. The effect size of the tootling intervention on tattling behavior in the fourth classroom was associated with a moderate effect (Tau-U = 0.50, CI_{90} = [0.18, 0.82]). In other words, there was a 50% reduction in tattling behavior in the fourth classroom, once the tootling intervention was implemented.

Research Question 3

Once the tootling intervention had been withdrawn from the classroom, were the reductions in behavior maintained 4 weeks later?

Disruptive Behavior

Follow-up data were collected on the class-wide disruptive behavior during circle time, as reported by the teachers through direct behavior ratings. All of the teachers were informed that they could continue with any version of the tootling intervention. Most teachers continued some aspects of the intervention but with much less fidelity or intensity than during the intervention phase. Overall, there was a small effect between the tootling intervention phase and 4-week follow-up (Tau-U = 0.14, $[CI]_{95}$ = [0.00, 0.43]). This demonstrates that, on average, the classrooms had a 14% reduction in disruptive behavior at the 4-week follow-up.

For the first classroom, results demonstrated that although there continued to be variability across sessions in the disruptive behavior during circle time, as reported by the teacher, there was a continued decreasing trend in the data in the 4-week follow-up. The effect size of the tootling intervention on disruptive behavior, through direct behavior ratings in the first classroom, was associated with a moderate effect at the 4-week follow-

up (Tau-U = 0.48, $[CI]_{90}$ = [0.00, 0.96]). In other words, there was an additional 48% reduction in disruptive behavior at the 4-week follow-up.

In the second classroom, visual analysis of the follow-up data demonstrated slightly higher levels of disruptive behavior, with good stability; however, despite the slight increase, the overall disruptive behavior levels were lower than during baseline. The effect size of the tootling intervention on disruptive behavior, through direct behavior ratings in the second classroom, was associated with a moderate increase in disruptive behavior at the 4-week follow-up (Tau-U = 0.26, $[CI]_{90}$ = [0.00, 0.75]). In other words, after the 4-week follow-up, there was a 26% increase in disruptive behavior.

Visual analysis results from the follow-up data in the third classroom demonstrate a slight increase in variability in disruptive behavior across sessions. There was no significant change in disruptive behavior in the third classroom from the intervention phase to the 4-week follow-up (Tau-U = 0.03, $[CI]_{90}$ = [0.00, 0.52]). In other words, there was a 3% increase in disruptive behavior following the 4-week follow-up.

Finally, the follow-up data in the fourth classroom demonstrated an increasing trend in disruptive behavior observed through visual analysis. Despite the increasing trend, the effect size of the tootling intervention on disruptive behavior, through direct behavior ratings in the fourth classroom, was associated with a moderate effect at the 4-week follow-up (Tau-U = 0.38, $[CI]_{90}$ = [0.00, 0.87]). In other words, there was a 38% decrease in disruptive behavior at the 4-week follow-up in the fourth classroom.

On-Task Behavior

Follow-up data were also collected through the direct observations on the class-wide on-task behavior during circle time. Overall, the mean effect size of the tootling intervention on preschool on-task behavior was associated with a small effect at the 4-week follow-up (Tau-U = 0.19, $[CI]_{95}$ = [0.00, 0.53]). In other words, on average, there was a 19% increase in on-task behavior, across the four classrooms, following the 4-week follow-up.

Four-week follow-up data from the first classroom demonstrated an increasing trend in class-wide on-task behavior as observed through visual analysis. The effect size of the tootling intervention on class-wide on-task behavior, in the first classroom, was associated with a large effect at the 4-week follow-up (Tau-U = 0.78, $[CI]_{90}$ = [0.28, 1.00]). In other words, there was a 78% increase in on-task behavior after 4 weeks. On-task behavior in the first classroom continued to increase between the intervention phase and the 4-week follow-up.

Visual analysis results from the second classroom demonstrated a decreasing trend in on-task behavior at the 4-week follow-up. There was no significant change in the second classroom between the intervention phase and the 4-week follow-up (Tau-U = 0.05, $[CI]_{90}$ = [0.00, 0.54]). In other words, there was a 5% increase in class-wide on-task behavior after the 4-week follow-up.

Results from the third classroom demonstrated no change in the level of data from the intervention phase to the 4-week follow-up. The effect size of the tootling intervention on the class-wide on-task behavior, in the third classroom, was associated with a moderate effect at the 4-week follow-up (Tau-U = 0.24, $[CI]_{90}$ = [0.00, 0.74]). In

other words, there was a 24% reduction in class-wide on-task behavior at the 4-week follow-up.

Tattling Behavior

Follow-up data were also collected on all four classrooms on the number of tattles emitted by the students. Overall, there was no significant mean effect between the tootling intervention phase and 4-week follow-up on tattling behavior (Tau-U = 0.11, $[CI]_{90}$ = [0.00, 0.40]). In other words, on average, there was an 11% increase in tattling behavior after the 4-week follow-up.

Despite a slight increase in tattling at the 4-week follow-up for the first classroom, the overall levels of tattling were less than baseline levels. The effect size of the tootling intervention on tattling behavior, in the first classroom, was associated with a large effect at the 4-week follow-up (Tau-U = 0.66, p = .03, $[CI]_{90}$ = [0.18, 1.00]). In other words, there was a 66% increase in tattling behavior after the 4-week follow-up.

In the second classroom, there was a slight decrease in tattling levels at the 4-week follow-up. The effect size of the tootling intervention on tattling behavior, in the second classroom, was associated with a small effect at the 4-week follow-up (Tau-U = 0.20, $[CI]_{90}$ = [0.00, 0.69]). In other words, there was a 20% decrease in tattling behavior after the 4-week follow-up.

There was a slight increase in the tattling behavior in the third classroom at the 4-week follow-up. The effect size of the tootling intervention on tattling behavior, in the third classroom, was associated with a moderate inverse effect at the 4-week follow-up (Tau-U = 0.46, $[CI]_{90}$ = [0.00, 0.95]). In other words, there was a 46% increase in

tattling behavior in the third classroom, after the 4-week follow-up.

There was a slight decrease in tattling behavior in the fourth classroom at the 4-week follow-up. The effect size of the tootling intervention on tattling behavior, in the fourth classroom, was associated with a moderate effect at the 4-week follow-up (Tau-U = 0.49, $[CI]_{90}$ = [0.00, 0.98]). In other words, there was a 49% decrease in tattling behavior in the fourth classroom, following the 4-week follow-up.

Research Question 4

Did the tootling intervention result in positive outcomes on the behavior of the preschool students that led to a reduction in the level of teacher stress?

Teachers completed the Teacher Stress Inventory prior to the initiation of the Tootling Intervention, as well as following the implementation of the tootling intervention, to measure whether the intervention had an indirect effect on the teacher's level of stress. Based on the total average stress ratings by the teachers, there was less overall stress following the tootling intervention (M = 1.94) compared to reported stress prior to the implementation of the intervention (M = 2.06). The professional distress in the teachers remained on average the same between pre and post intervention ratings. The greatest reduction in average stress levels was observed on the Discipline & Motivation subscale (0.55 average stress reduction), followed by Work-Related Stressors (0.22 average stress reduction). There was an increase in the average stress level for Time Management (.34 average stress increase). Figure 6 depicts the results visually. Refer to Table 1 for the individual ratings by teacher for each subscale. Due to a

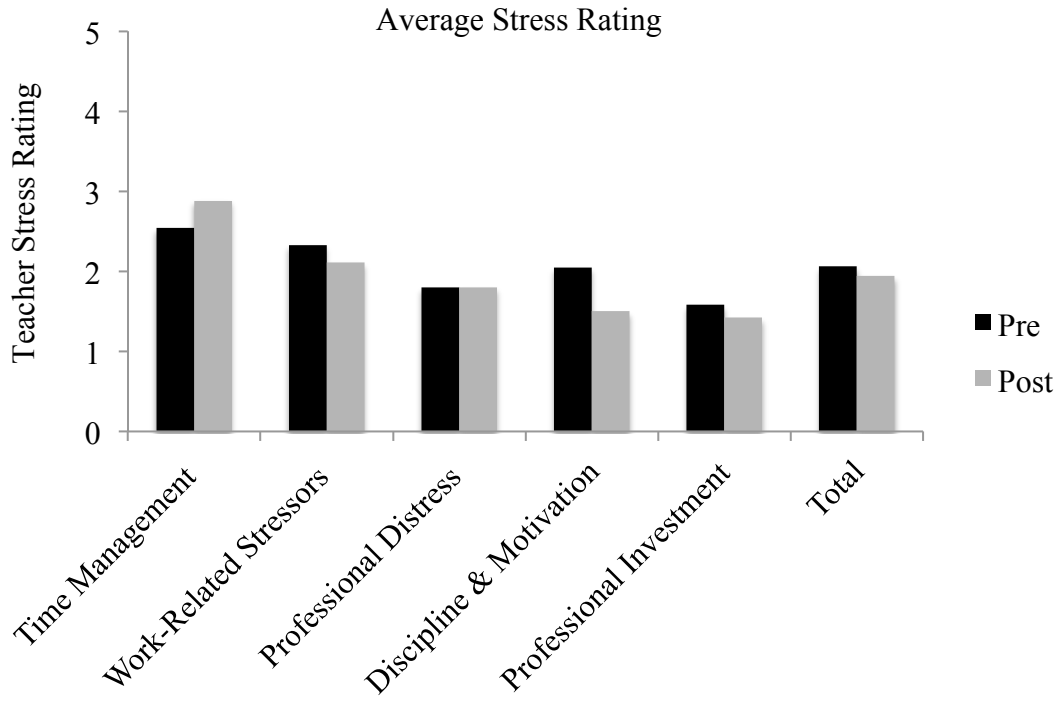


Figure 6: Average Ratings on Teacher Stress Inventory Pre and Post Tootling Intervention

Table 1
Teachers Ratings on Teacher Stress Inventory Pre and Post Tootling Intervention

	Time Management	Work-Related Stressors	Professional Distress	Discipline & Motivation	Professional Investment
Teacher 1					
Pre	2.75	2.33	---	2.33	1.75
Post	3.00	2.5	1.6	1.33	1.5
Teacher 2					
Pre	---	---	---	---	---
Post	2.75	2.0	2.2	3.0	2.5
Teacher 3					
Pre	2.88	2.33	1.2	1.33	1.0
Post	3.63	2.17	1.6	1.17	1.25
Teacher 4					
Pre	2.0	2.33	2.4	2.5	2.0
Post	2.0	1.67	2.0	2.0	1.5

technological error when sending preintervention ratings, Teacher 2's preintervention data were not available for analysis.

Research Question 5

Did the teachers involved in the study find the tootling intervention to be an acceptable treatment for the class-wide behavior problems?

Teachers completed the Behavior Intervention Rating Scale (BIRS) to rate their satisfaction with the tootling intervention, as used within their classroom. All teachers rated the tootling intervention with high levels of acceptability. Results are reported in Table 2. All teachers rated the acceptability of the intervention higher than the effectiveness or time of effectiveness for the intervention. The third teacher reported the lowest scores of all teachers on the time of effectiveness with a score of 4.00 out of 6.00.

Research Question 6

Did the teachers involved in the research report high levels of satisfaction with the use of videoconferencing within the study?

Teachers completed both the Fast Form of the Technology Acceptance Model (FF-TAM) and the Distance Communication Comfort Scale (DCCS) to measure their level of satisfaction with the use of technology for consultation purposes and direct observations within the research study. Refer to Table 3 for individual teacher ratings on the FF-TAM. The scale ranges from a high of 3 to a low of -3. Higher ratings on this scale represent higher acceptability for the use of technology for consultation purposes. The average rating of technology acceptability on the FF-TAM was 2.19. The average

Table 2
Teacher Satisfaction with Tootling

	Total BIRS Score	Acceptability	Effectiveness	Time of Effect
Teacher 1	5.92	6.00	5.71	6.00
Teacher 2	-----	-----	-----	-----
Teacher 3	4.92	5.33	4.29	4.00
Teacher 4	5.17	5.40	4.71	5.00

Note: Participant 2 did not complete the Satisfaction Measure

Table 3
Teacher's Ratings of Technology Acceptability on FF-TAM

	Overall Technology Acceptability	Usefulness	Ease of Use
Teacher 1	3.0	3.0	3.0
Teacher 2	2.08	3.0	1.17
Teacher 3	1.92	1.67	2.17
Teacher 4	1.75	1.5	2.0

rating across teachers for Usefulness of the technology was higher (*M*=2.29) than the average rating for Ease of Use of the technology (*M*=2.09).

Refer to Table 4 for individual teacher ratings on the DCCS. This scale ranges from a high score of 7 to a low score of 1. Higher ratings on this scale represent greater comfort or acceptability of the different forms of communication. The average rating for face-to-face communication was 4.29. The average rating for two-way video communication (i.e., Facetime or Skype) was 5.34. Finally, the average rating for two-way audio communication (i.e., telephone) was 5.39.

Table 4
Average Teacher's Ratings on Distance Communication Comfort Scale (DCCS)

	Face-to-Face Communication	Two-Way Video Communication	Two-Way Audio Communication
Teacher 1	3.67	4.11	4.22
Teacher 2	4.5	5.56	5.44
Teacher 3	3.89	5.56	5.78
Teacher 4	5.11	6.11	6.11

Treatment Integrity

Three different measures of treatment integrity were used to ensure that the teachers were implementing all aspects of the tootling intervention. The primary measure of treatment integrity was teacher report through the daily review checklist in Appendix H. This measure asked teachers to report daily whether they implemented all 6 components to the Tootling intervention. Through the direct observations, observers were able to verify daily report accuracy on 30% or more of the teacher reported steps 1, 2 and 3 of the daily review checklist. Considering that the 15-minute direct observation was taking place during circle time, many days observers were able to see the teacher review tootling with the class in the morning, review the classroom rules, and remind the children how they could earn a token. Considering that some circle times would last as long as 30 minutes, there were times that the observer's 15-minute direct observation did not coincide with when the teacher would have gone through the first 3 steps of the daily review checklist. Furthermore, technological issues sometimes prevented observers from conducting the direct observations every day; thus, there were days that the observers could not verify the teacher's report on Steps 1 (i.e., Review Tootling), 2 (i.e., Review Classroom Rules), and 3 (i.e., Review How to Earn a Token). Step 4 (i.e., Provide Tootle

Tokens) of the daily review checklist was verified through the permanent product of the tootle tokens of all colors in the tootle tower. Step 5 (i.e., Review Tootles) of the daily review checklist was verified during 30% of the class periods during transition time. Step 6 (i.e., Provide Class Reward) of the daily review checklist was verified through teacher report of the specific reinforcer that the class received for reaching their goal each time.

Overall, on average, the teachers implemented Steps 1, 2, and 3 with 100% integrity. The first teacher implemented Steps 1, 2, and 3, with 100% fidelity, as recorded through teacher report and observation of 50% of the intervention days by the researchers. The second teacher implemented Steps 1, 2, and 3, with 100% fidelity, as recorded through teacher report and observation of 74% of the intervention days by the researchers. The third teacher implemented Steps 1, 2, and 3 with 100% fidelity, as recorded through teacher report and observation of 50% of the intervention days by the researchers. The fourth teacher implemented Steps 1, 2, and 3 with 100% fidelity, as recorded through teacher report. We were unable to verify treatment integrity in the fourth classroom considering that technology difficulties prevented direct observations.

The first classroom implemented Step 5 (i.e., Review Tootles) with 100% fidelity, as recorded through teacher report and observation of 30% of the intervention days by the researcher. Due to technology difficulties, on random observation days, the researcher needed to contact the teacher through Face Time or the phone prior to the observation (rather than using the live security feed), thus making the teacher aware of the observer's presence on those days. The second classroom reported 100% implementation of Step 5 through teacher report; however, the researcher only observed Step 5 in five out of the six

random observations throughout the intervention. The third classroom reported 94% implementation of Step 5 through teacher report and independent observations demonstrated the display of Step 5 five out of the 6 random days of implementation. Finally, it was reported through teacher report that the fourth classroom implemented Step 5 with 89% fidelity; however, due to technological difficulties in classroom 4, researchers were unable to perform independent observations on 30% of the intervention sessions.

There was 100% implementation of Step 6 (i.e., Provide Class Reward) throughout the tootling intervention by all classrooms. Some of the rewards that were given were sock party, face painting, ice cream party, popsicles, bring cuddly to school, extra gym time, or a small trinket.

Interobserver Agreement

An additional observer watched the live video feed with another observer to obtain interobserver agreement on 33% percent of the direct observations conducted in each preschool classroom to ensure consistency and accuracy between all observers. Direct observations were conducted in three of the four classrooms, considering that the technology in the fourth classroom did not work. Interobserver agreement was calculated during all three phases of the research study: baseline phase, intervention phase, and follow-up phase. Interobserver agreement was analyzed by dividing the number of agreements by the number of agreements and disagreements between raters. Research standards have identified 80% as the minimum acceptable percentage for interobserver agreement (Forehand & McMahon, 1981). The overall interobserver agreement for the

first classroom was 91%, with a range from 82% to 98%. During the baseline phase in the first classroom, there was 95% agreement, during the intervention phase there was 90% agreement, and during the follow-up phase there was 89% agreement between the observers. The overall interobserver agreement for the second classroom was 94%, with a range from 88% to 100%. During the baseline phase in the second classroom, there was 95% agreement, during the intervention phase there was 93% agreement, and during the follow-up phase, there was 90% agreement. Finally, in the third classroom, the overall interobserver agreement was 87%, with a range from 70% to 97%. During the baseline phase in the third classroom, there was 85% agreement, during the intervention phase there was 89% agreement, and during the follow-up phase, there was 90% agreement.

Direct observations during circle time were used to compare interobserver agreement to the direct behavior ratings by the teachers considering past research suggests a significant relationship (Chafouleas, McDougal, Riley-Tillman, Panahon, & Hilt, 2005; Riley-Tillman, Chafouleas, Sassu, Chanese, & Glazer, 2008). Past research has demonstrated high consistency between systematic direct observations of the entire group and direct behavior ratings of the entire group (Rilley-Tillman, Methe, & Weegar, 2009). For the first classroom, a linear correlation revealed a significant inverse relationship between the direct behavior ratings of disruptive behavior by the teacher and direct observations conducted by researchers, $r = -0.48$, $p < .01$. For the second classroom, a linear correlation did not reveal a significant relationship between the direct behavior ratings of disruptive behavior by the teacher and direct observations conducted by researchers, $r = -0.21$, $p > .05$. For the third classroom, a linear correlation did not

reveal a significant relationships between the direct behavior ratings of disruptive behavior by the teacher and direct observations conducted by researchers, $r = -.04$, $p > .05$. A correlation could not be computed for the fourth classroom, as there were no direct observations conducted due to technology difficulties. These results do not demonstrate significant inverse relationships for two of the classrooms.

CHAPTER 4

DISCUSSION

Although many individuals falsely believe that behavioral disorders cannot be seen in children as young as those in preschool, research suggests that 10-15% of preschool-aged children emit mild to moderate behavior problems (Campbell, 1995). By reducing these classroom behavior problems through intervention, it has been found that per week, preschool teachers have 50 more minutes of instruction due to fewer disruptions during large-group activities and smoother transitions (Morris, Millenky, Raver, & Jones, 2013).

One research study found high amounts of relational aggression emitted by one in every five preschool children (Swit & McMaugh, 2012). Researchers have found a negative relationship between a child's level of relational aggression and level of prosocial behavior. Thus, the more a child engages in relational aggression, the less likely that they will engage in prosocial behaviors in the classroom (Swit & McMaugh, 2012); thus, it is important to target teaching prosocial behaviors through interventions. Tootling is one positive behavior intervention that can help to increase children's prosocial behaviors. This study examined whether the tootling intervention could be adapted to generate effective outcomes on the disruptive behavior of students in preschool classrooms, and tattling behavior emitted by preschoolers.

Consultation with teachers regarding the implementation of the tootling intervention, along with performance feedback throughout the intervention, was delivered through videoconferencing technology. The goal of the study was also to demonstrate that teachers could receive training and consultation through videoconferencing, which resulted in the successful implementation of the tootling intervention. Moreover, direct observations of the classroom were also conducted through technology via a one-way security camera in each classroom. The use of technology for direct observations was used to minimize the reactivity of the students and teachers during the observation, as well as to provide a more naturalistic sample of their behavior.

Tootling Intervention

Tootling, a positive behavior class-wide intervention, combines many effective components that have been individually supported through research into one package. One of the most effective components is the use of differential reinforcement of an alternative behavior (DRA). Tootling taught the preschool children to ignore, or remove their attention from peers' problem behavior (i.e., extinction) and instead provided attention to their peers' prosocial behavior (Vollmer & Iwata, 1992). Therefore, DRA procedures, which are the basis of tootling, can simultaneously decrease disruptive behaviors while increasing children's positive behaviors (LeGray, Dufrene, Mercer, Olmi, & Sterling, 2013). Disruptive behavior is often maintained by peer attention; therefore, by teaching children the procedures of DRA, not only did they remove a large source of attention for disruptive behavior, but they also allowed for more children to receive reinforcement throughout the day considering that the teacher was unable to

observe every student and their behavior at all times (Skinner et al., 2000). Tootling is different from other interventions that target class-wide disruptive behavior, such as the Good Behavior Game (Kellam et al., 2011) or First Step to Success (Walker et al, 2009), as those interventions rely on teacher praise, failing to utilize peers as an agent of change, like the tootling intervention.

Another critical component to the tootling intervention is the use of an interdependent group contingency. The interdependent group contingency creates more effective results by motivating preschool students to motivate their peers towards the group goal (Payne, Dozier, Briggs, & Newquist, 2016). Interdependent group contingencies are time efficient since teachers can deliver reinforcement to the whole group: They increase prosocial cooperative behavior, they increase sharing of resources, they improve social contact between students, and they allow teachers to give class-wide social reinforcers rather than just using tangible reinforcers (Skinner, Cashwell, & Dunn, 1996). Some examples of the group reinforcers that were provided during the current study include a sock party, popsicle party, face painting, ice cream party, small trinkets, extra time playing outside, and bringing a stuffed animal to school. The group criterion for reinforcement was determined initially by the students' baseline number of tootles that they accumulated within the first 3 days of the intervention, combined with a 15% increase for the second criterion. Consistent with past research (Murphy & Zlomke, 2014), the number of tootles emitted by the preschoolers decreased as the intervention continued. It appeared that the initial excitement from the intervention inflated the rates of baseline to higher levels; therefore, it would have taken the children too long to receive reinforcement if the next criterion was baseline rates plus a 15% increase. Therefore, it

was determined that based on behavioral principles of frequent reinforcement to strengthen the behavior, criteria were determined with the teacher to ensure that the children would receive the group reward between 4-10 days of tootling.

Another important aspect of the tootling intervention is the use of public posting. Public posting served as a prompt for students to continue to reach the class-wide goal (Skinner et al., 2000). Within this research, each classroom had a clear PVC pipe fixed upright in a wooden stand to use as their method of public posting. Every time the children tootled, they put a colored token into the PVC pipe. Each teacher drew on the clear piping with a marker to designate the criterion to be reached for group reinforcement. One teacher provided her class with mini goals each day as a way to combat the decrease in tootles after the novelty of the intervention wore off. She drew lines on the PVC piping to help children visualize where they needed to reach each day. It proved to be successful in increasing the amount of daily tootles in the large class of 30 children. Despite their not receiving a daily reward for the mini goals, the children were still motivated to work toward the larger criterion.

Finally, the training of students on the tootling intervention was a vital component that taught the children the rules of the class, as well as the behaviors that should be reinforced through tootling (i.e., prosocial behaviors). Research supports that pre-teaching an alternative behavior prior to implementing DRA procedures, such as tootling, resulted in greater engagement of the alternative behavior and greater decrease in disruptive behavior compared to using DRA procedures without the preteaching component (LeGray et al., 2013). The training component was even more important with the preschool population, as young children are more likely to have a skill deficit as

a factor impacting their engagement of prosocial behaviors. Furthermore, training the children prior to implementing the tootling intervention may have provided a discriminative stimulus for the alternative behavior by signaling which behaviors are desired and will be reinforced (LeGray et al., 2013). Finally, the training component in the tooting intervention was important as it followed the requirements of PBIS by explicitly teaching behavioral expectations to the children (Sugai & Horner, 2002).

Tootling also successfully increased preschool children's awareness of peers' prosocial behaviors. One barrier that teachers noted during the tootling intervention was the children's egocentrism; specifically, they fixated on their own positive behavior rather than their peers'. Many children needed ample prompting and modeling to understand that they receive tootle tokens solely by recognizing their peers' prosocial behaviors, rather than completing the behaviors themselves. According to Piaget (1926), preschool children demonstrate egocentrism; however, one can decrease egocentric thinking by increasing their social interactions. Tootling increases children's prosocial behavior and social interactions, through reinforcement of such behaviors; thus, tootling helped to decrease egocentric thinking in the preschool children. The number of tootles alone demonstrates how the preschool children were able to learn how to focus on the appropriate behavior of other kids rather than focusing on themselves or their own behavior.

Throughout 1 month, across the four classrooms there were 191 tootles about children using gentle hands with their friends, 159 tootles about sharing toys with friends, 158 tootles about inviting new friends to play, 227 tootles about using kind words, and 207 tootles about helping other friends. Overall, in 1 month, the tootling intervention

motivated preschool children in four classrooms to provide reinforcement for peers' prosocial behaviors 942 times. That was 942 opportunities for positive attention from their peers for appropriate behavior. In other words, 942 opportunities for children to practice engaging in prosocial behaviors to try and receive reinforcement from their peers. Additionally, this intervention presented 942 opportunities where the children engaged in social behavior; thus 942 opportunities where they worked on decreasing their egocentric thinking. Based on these results alone, the tootling intervention could be deemed as a successful intervention as it increased children's ability to recognize and provide attention to their peers' prosocial behavior but also increased their own prosocial behavior. However, in addition to these results, there are more data to support this intervention.

Decreasing Disruptive Behavior

The first question examined in this research was whether there was a functional relationship between implementing the tootling intervention and a decrease in disruptive behavior. It was hypothesized that the tootling intervention would result in significant decreases in disruptive behavior as measured by the direct behavior ratings. It was hypothesized that there would be a change in level of the data on the DBR ratings between the baseline and intervention phase and an immediate change in data following the initiation of the intervention in each specific class. Based on visual analysis, there was a change in the level of data; however, although hypothesized, there was not an immediate change in disruptive behavior following the initiation of the intervention. This could be due to the fact that the study did not directly target disruptive behavior;

therefore, it could take time for the collateral effects to be observed on disruptive behavior.

Although the overall effect across the four classrooms was a small effect with an average of 17% reduction in disruptive behavior, there was some variability across the classrooms. The first classroom had a 50% decrease in disruptive behavior and the second classroom had a 42% decrease in disruptive behavior, which were both moderate effects. Although both third and fourth classroom did not have significant reductions in disruptive behavior as measured by Tau U, visual analysis supports that the tootling intervention produced stability in the data from day to day, despite which children were present on the day. Considering that not every child came to school every day, it is significant that the intervention was able to provide stability in disruptive behavior across all days, whether the child with problem behaviors was present or not. It is noteworthy that even though tootling was not directly targeting disruptive behavior, there was still a significant change in all of the classrooms. This adds to the effectiveness of the tootling intervention.

Additionally, it was important to determine whether the observed reductions in disruptive behavior could be maintained following the removal of the consultation and performance feedback. It was hypothesized that after 4 weeks following the removal of the tootling intervention from the classrooms, a significant difference would still be evident between the disruptive behavior during baseline and the disruptive behavior observed during the maintenance phase. However, it was hypothesized that there would be a slight increase in disruptive behavior during the maintenance phase compared to the treatment phase. Visual analysis confirmed our hypothesis that after the 1-month follow-

up, disruptive behavior would remain lower than levels of disruptive behavior during baseline. Data from Tau U demonstrates that the second part of the hypothesis regarding a slight increase in disruptive behavior compared to the intervention phase was only partially confirmed. Both the first classroom and the fourth classroom continued to have decreases in disruptive behavior following the maintenance phase suggesting continual effects even as the intervention was not continued with high fidelity. The first classroom and fourth classroom had the highest number of tootles per person throughout the intervention phase, which may contribute to the continued treatment gains during the maintenance phase. The children in these classrooms may have been more involved in the intervention, resulting in greater impact.

Increasing On-Task Behavior

The present research also examined whether the tootling intervention would result in an increase in class-wide on-task behavior. It was hypothesized that the tootling intervention would result in significant increases in class-wide on-task behavior as measured by direct observation. It was hypothesized that there would be a change in level of the data on the direct observations of on-task behavior between the baseline and intervention phase and an immediate change in data following the initiation of the intervention in each specific class. Visual analysis demonstrated that there was not an immediate change in data following the initiation of the intervention. As mentioned previously in regard to the disruptive behavior, on-task behavior was not directly targeted; therefore, some time may be needed before the collateral effects from the tootling intervention are observed on the class-wide on-task behavior.

There was a significant increase in class-wide on-task behavior when the tootling intervention was implemented in both the first and third classroom; however, there was a significant decrease in on-task behavior once the intervention was implemented in the second classroom. It was noted during the direct observations that the use of momentary time sampling individually on a new child every 15 seconds in order to capture the class-wide on-task behavior may not have been the most accurate measure to use within this study with preschool children. Researchers noted that the reported class-wide on-task behavior from the direct observation was not always representative of the disruptive behavior that was displayed throughout the circle time. It is possible that direct observations of certain target students with problem behavior may have better demonstrated the effects of tootling on preschool on-task behavior (Briesch et al., 2015). Additionally, it is possible that since the baseline class-wide on-task behaviors were relatively high (70-80%), there was room for improvement, but since behavior at 80% on-task is considered acceptable, it would be harder to change. It is possible that with such high initial class-wide on-task percentages, more explicit interventions may be needed to explicitly target on-task behavior rather than collateral effects from the tootling intervention. Research has also demonstrated that without directly targeting on-task behavior when using a group contingency in preschool, changes were not observed. The researcher needed to place the contingencies on both problem behavior and on-task behavior in order to see results in both behaviors when using a group contingency in preschool (Payne, Dozier, Briggs, & Newquist, 2016). This could explain the lack of positive results in the second classroom regarding class-wide on-task behavior. One thing to note is that during some of the direct observations, technological issues or

availability of observers caused some of the direct observation time frames to be shortened from the standard 15 minutes. This may contribute to the unrepresentative class-wide on-task values.

Additionally, this research examined whether the changes in on-task behavior would be maintained after a 4-week follow-up. It was hypothesized that after 4 weeks following the removal of the tootling intervention from the classrooms, a significant increase would still be evident between the class-wide on-task behavior during baseline and the on-task behavior observed during the maintenance phase. However, it was hypothesized that there will be a slight decrease in on-task behavior during the maintenance phase compared to the treatment phase. The only significant increase in class-wide on-task behavior was seen in the first classroom at the 4-week follow-up with an additional 78% increase in on-task behavior. As mentioned previously, considering that the first class had the most amount of tootles during the intervention phase, that may contribute to why there were continued gains at the 4-week follow-up. There was a moderate decrease in on-task behavior in the third classroom at the 4-week follow-up; however, visual analysis shows that the drop in on-task behavior remained higher than baseline levels as hypothesized.

Tattling

Furthermore, we examined whether the tootling intervention would produce a reduction in the amount of tattling emitted by the children in each classroom. It was hypothesized that the tootling intervention would create a reduction in the amount of tattling, measured through the daily frequency counts by teachers. Furthermore, that

functional relationship between the implementation of tootling and a decrease in tattling behaviors would be evident through a change in the level of data. Although it was hypothesized that there would be an immediate change level of tattling behavior following the implementation of the tootling intervention, the immediate change only occurred in one classroom. It is possible that immediate changes did not occur as the first 3 days of the intervention were training days and it may have taken the preschool children longer to understand the rules and behavioral contingencies.

The greatest effects from the tootling intervention were observed reducing tattling behavior in the preschool students. An explanation for these highly successful results could be because we directly taught the children to refrain from tattling or ignoring inappropriate behavior of other children. This could also be due to the fact that children were getting positive peer attention for tootling rather than tattling; therefore, the reinforcement contingency influenced their behavior. Across all four classrooms, there was an average 50% reduction in tattling behavior with a range from 21% reduction to 83% reduction. The third classroom had the lowest percentage reduction in tattling behavior; however, at baseline they already had low rates of tattling behavior with zero tattles on some days.

Despite the large effects on tattling behavior observed during the intervention phase, two classes continued to decrease tattling behavior at the 4-week follow-up, while two classes increased in tattling at the 4-week follow-up. It is possible that without high rates of reinforcement for the alternative behavior to tattling (i.e., tootling), tattling behavior may re-emerge. It is also possible that in order to maintain results following the removal of the intervention, the intervention duration might need to be longer with

preschool children to help establish the skills as a habit. Despite the increase in tattling behavior at the 4-week follow-up in two of the classrooms, their levels at follow-up remained lower than baseline levels of tattling.

Teacher Stress

In addition to the hypothesized effects the tootling intervention would have on preschool children's disruptive behavior, on-task behavior, and tattling, this research examined whether there would be a reduction in the level of teacher stress due to the positive effects caused on the children's behavior when implementing the tootling intervention. It was hypothesized that a reduction in disruptive behavior would reduce the level of teacher stress. The data from the Teacher Stress Inventory support our hypothesis that there would be a reduction in overall stress following the tootling intervention ($M = 1.94$) compared to reported stress prior to the implementation of the intervention ($M = 2.06$). It is hard to know whether this is a clinically significant change or not considering that they are low rates of stress. The data suggest that the greatest reduction of stress was observed on the Discipline & Motivation subscale (.55 average stress reduction). This is the factor that we would estimate to be most influenced since it is regarding the stress due to student behavior. The second greatest reduction in stress was on the Work-Related Stressors subscale (.22 average stress reduction). This subscale measured the stressors related to having too many things to do and not enough time to do them. It is possible that the reduction in preschool disruptive behavior reduces the amount of time spent on discipline, thus, freeing more time in the day. Surprisingly, teachers reported an increase in the average stress level for Time Management (.34

average stress increase). This could be attributed to some of the intensity of the tootling intervention and difficulty with implementing all of the components every day. Specifically, the teacher in the third classroom found the intervention to be slightly more difficult to implement steps during circle time when she already had 30 children that she had to maintain attention for 30 minutes.

Treatment Acceptability

Following the implementation of the tootling intervention, the lead teachers reported their level of treatment acceptability for the tootling intervention in their classroom. It was hypothesized that teachers would report high levels of treatment acceptability for the use of the tootling intervention within their classroom due to a reduction in class-wide disruptive behavior.

Teacher 1, who had the greatest effects on classroom behavior from the implementation of the tootling intervention, reported the highest satisfaction with the intervention. The lowest level of teacher satisfaction with the Tootling intervention was reported by Teacher 3, which could be explained by her large class size (i.e., 30 children) and the difficulty with implementing all of the components of Tootling every day during her circle time, due to time constraints. Despite Teacher 3 reporting the lowest satisfaction with Tootling, her average total score was still 4.92 out of 6.00, which is still high satisfaction with the intervention. The only item that was rated as slightly negative was that Teacher 3 felt that the children's behavior was slightly not severe enough to warrant the use of the tootling intervention.

When examining the individual factors of treatment acceptability (e.g.,

Acceptability, Effectiveness, and Time of Effect) the highest ratings from all three teachers were reported on the acceptability of the intervention. Both Teacher 1 and Teacher 4 rated the effectiveness as their lowest overall rating, while the third teacher rated the time of the effect as her least satisfied factor. Again, despite these relative lower scores, all three teachers rated all aspects of the intervention as acceptable to highly acceptable.

Treatment Integrity

Three different measures of treatment integrity were used to ensure that the teachers were implementing all aspects of the tootling intervention (i.e., direct observation, teacher report, and permanent product). All six steps of the tootling intervention were implemented with high rates of fidelity across all four teachers. There was 100% treatment integrity for all four teachers on Steps 1, 2, 3, 4, and 6. The hardest step for the teachers was Step 5 of the tootling intervention, which required them to remember to review some examples of tootles from earlier in the day at transition time. The lowest teacher reported treatment integrity was reported by the fourth teacher with 89% fidelity, followed by 94% for the third teacher and 100% for the first and second teacher; however, it was noted during some direct observations verifying teacher reports that for both the second and third teacher, only 5 of the 6 observed days could be verified despite the teacher's reported implementation of Step 5 on all 6 days. Through teacher report, it became evident that they were unable to review the tootles at the designated transition time; however, they still reviewed the tootles before the children left for the day. This explains the discrepancy in teacher report versus observations of transition

time.

Interobserver Agreement

The average interobserver agreement scores, for all three classrooms, were all above acceptable standards of 80% agreement or higher (Forehand & McMahon, 1981). The third classroom was the only classroom that had some days of interobserver agreement percentages below 80. The large class size of 30 children, as well as the positioning of the camera may have affected some of the percentages. All seven researchers observed at all three locations where direct observations were taking place with rotation between which individuals paired together during observations. Therefore, it is unlikely that the lower interobserver agreement percentages in the third classroom were due to deficits in observer training, as the other classroom's percentages were not affected.

Despite research demonstrating a significant relationship between direct behavior ratings and direct observations (Chafouleas et al., 2005; Riley-Tillman et al., 2008), the current research did not calculate a significant relationship between the two. This does not mean that there was low interrater reliability between the teachers and observers but could be explained by the unrepresentative method for class-wide direct observations. Previous research did not use class-wide direct observations nor direct behavior ratings of the entire class. Additionally, it is possible that the length of time for the direct behavior ratings resulted in overestimation of the occurrence of disruptive behavior, which may have contributed to the lack of significant relationship between DBRs and direct observation. Previous research found that the longer the observation period (e.g., 5

minutes versus 20 minutes), an overestimation of the actual occurrence of the disruptive behavior was more probable (Riley-Tillman, Christ, Chafouleas, Boice-Mallach, & Briesch, 2011).

Teleconsultation Satisfaction

Finally, due to the involvement of technology in the research, we were interested in whether the teachers would report high levels of satisfaction with the use of videoconferencing and technology in this study for consultation purposes and observations (i.e., teleconsultation). It was hypothesized that the teachers would report high satisfaction with the use of technology within the study as many of the teachers are from a younger generation where videoconferencing is a common activity. The average teacher rating of technology acceptability on the FF-TAM was 2.19 with 3 being the highest acceptability of the use of technology for consultation purposes. This demonstrates that the teachers found the use of technology for consultation purposes to be acceptable to highly acceptable. When examining the different components of technology acceptability, the teachers, on average, rated higher ratings for usefulness than for ease of use for the technology. The second teacher rated the ease of use as the lowest of all four teachers, which is unsurprising considering that she was unable to navigate videoconferencing for consultation purposes. The fourth teacher rated the usefulness component as the lowest compared to the other three teachers. This could be explained by the inability to collect direct observations in her classroom due to the internet connection difficulties. Furthermore, this teacher also received delayed video feeds during consultation.

Another measure of acceptability of technology for consultation purposes, the DCCS, was utilized to compare specifically between in-person communication, videoconferencing communication, or telephone communication. On average, the data demonstrate that the teachers felt more comfortable with communication on the telephone (5.39), then communication through videoconferencing (5.34), and then communication in-person (*M*=4.29). This scale is beneficial for accurately measuring comfort with videoconferencing and communication on the telephone; however, the way that the items are worded on the in-person comfort scale (i.e., I would prefer to talk to my consultant in person), the scores are deflated compared to how teachers would realistically feel towards in-person communication.

Technical and Practical Considerations With Tootling Via Teleconsultation

One important component of this research was the involvement of technology. Technology was utilized for direct observations, consultation, and reporting data. Technology made it possible to conduct the research in four different cities with daily direct observations in three classrooms. Technology made it possible for the researchers to provide consultation to the teachers who were located in another state than the researcher. Furthermore, using technology may have minimized observer reactivity. Had there been a researcher physically present in the classroom, the preschoolers' behavior could have been affected.

Despite the many added benefits of using technology for the research, there were some difficulties throughout the study. Most of the difficulties happened during the

direct observations; however, there were some difficulties during the consultation with the teachers. At times, the connection for using videoconferencing with one of the teachers was weak causing some delay in the conversation. Another teacher had difficulty using technology, so she preferred to just receive consultation over the phone rather than using videoconferencing.

A security camera was placed in each preschool classroom to stream a live feed of the circle time area for the direct observations. There were some difficulties throughout the live streaming. First, despite directly connecting with an Ethernet cord, video streaming could not be maintained in the fourth classroom, and thus we were unable to collect direct observation data. Due to the wireless strength in the first classroom, we needed to modify the location of where the circle time was conducted so that it was possible to stream the content. The teacher needed to switch classrooms with another teacher just for her circle time every day. This change of location for their circle time may have caused changes in the preschoolers' behavior. Furthermore, in order to obtain interobserver agreement on the teacher's treatment integrity of one of the components of the tootling intervention, the teacher became aware of the days when interobserver agreement was being collected for that component. The researcher would have to call or Face Time the teacher to observe that component of the program. This may have altered her behavior, as she would have been cognizant of the days she was being observed.

In addition to these difficulties due to the wireless connection, at times the internet connection would cause delays in the live feed, which disrupted the direct observations. This was especially difficult when the researchers were conducting interobserver agreement, as at times, the delay would cause the observers to be observing

two separate moments in the live feed. This delay contributed to lower percentages of agreement for interobserver agreement. Furthermore, the placements of the camera in each classroom impacted the quality of the data throughout the direct observation. One of the classrooms had the camera behind the group of students while two of the classrooms had the camera facing the children. The available outlets and access to Ethernet cords controlled the placement of the cameras in each classroom; however, there were some benefits and drawbacks for each placement. A benefit to observing the children with the camera behind the children is that it was possible to have a further away observation point, thus being able to see all of the children at once if desired. This is beneficial, as time would not be wasted moving the camera from child to child in between the observations. A drawback to having the camera behind the children is that it was difficult to know whether the child was actually looking at the teacher or whether they just had their body and head facing in the direction of the teacher. Additionally, it was difficult to tell whether the child that the researcher was observing at that moment produced an inappropriate vocalization or if it was another child. A benefit to having the camera in front of the children was that it was easier to see whether the child was on-task, as defined by looking at the teacher or not. Even though you could now see the children's faces, it was still hard at times to determine whether a vocalization occurred from the focal child, due to the delay in feed. Another drawback to having the camera facing the children was that it was very close to the children; thus it was not possible to see all of the children at once and the camera had to be moved between observations. This became difficult when there was slow internet connection. Furthermore, due to some concerns at some of the research locations, the teachers would turn off the cameras

when they were done with their morning preschool class. This would cause difficulties because at times the teachers would forget to turn them back on the next morning for circle time, resulting in a missed observation.

Implications for School-Based Practitioners

Within this current study and past research (Cihak et al., 2009), the tootling intervention has been successfully used as a Tier I intervention for classrooms with higher levels of disruptive behavior. Tootling meets all of the criteria for School-Wide PBIS to be used as a Tier I intervention with a wide variety of grade levels. This class-wide intervention can also be used to prevent disruptive behavior and tattling, as well as aid in creating a more positive classroom environment. Teachers can begin using tootling at the beginning of the school year to reinforce appropriate behaviors and prevent problem behaviors (Lambert et al., 2015). Tootling as a Tier I intervention would be especially useful with younger aged children such as preschool, kindergarten, and first grade where children are still learning prosocial skills and tend to have higher rates of tattling behavior. The explicit teaching of class-wide expectations will help children to develop prosocial skills. However, tootling can also be implemented effectively as a Tier II by targeting specific groups of student with difficult behavior (Lambert et al., 2015). More research is needed to examine tootling as a Tier II intervention by looking at individual student results as an effect of the intervention.

Furthermore, the tootling intervention can help teachers by using peers as a method of reinforcement to other peers. Often it is hard for teachers to maintain high rates of reinforcement (e.g., 5 positives to every negative interaction; Skinner et al.,

2000); therefore, tootling teaches the peers to help deliver that reinforcement, reducing the stress on teachers while creating a positive classroom environment. Another important reason for using peers in the tootling intervention is to remove an important source of attention for disruptive behavior. Considering that the function of a lot of disruptive behavior is to receive peer attention, interventions that fail to target that component by involving the peers may fail to be as successful in preventing or reducing disruptive behavior. Tootling explicitly teaches the students to ignore the inappropriate behavior of their peers and solely focus on their peer's positive, prosocial behavior; therefore, tootling targets the component of peer attention that maintains so many school-wide disruptive behaviors. Additionally, the tootling intervention is teaching replacement behaviors, rather than just reducing the problem behavior. This will help to create a sustained positive effect once the intervention has been removed as the children have been taught and received reinforcement for exhibiting the replacement behavior to their problem behavior. This aligns with the principles of ABA in that when we determine the function of a child's behavior, we need to find a replacement behavior that achieves that same function; however, the replacement behavior is more socially desired or acceptable.

Limitations and Future Research

The tootling intervention produced great results by increasing preschooler's prosocial behaviors, increasing their recognition of their peers' prosocial behaviors, increasing on-task behavior, decreasing tattling, and decreasing disruptive behavior. Despite the overwhelming benefits of the tootling intervention in preschool with the use of technology to collect the data and provide consultation, there were some limitations to

the study that helped produce some ideas for future research that will advance the literature on tootling and teleconsultation.

Although social validity of the tootling intervention was collected from the teachers, a rating of the preschooler's acceptability of the intervention was not compiled. Future research should examine their acceptability of the intervention through the use of a child sensitive social validity measure such as the "funometer" (Risden, Hanna, & Kanerva, 1997) or "smileyometer" (Read, MacFarlane, & Casey, 2002). It is possible, however, that due to their level of insight, there may be problems with the accuracy of their reports (Zaman, Vanden Abeele, & De Grooff, 2012). Nevertheless, considering the importance of social validity for interventions, this would be worth examining in future research.

As noted by past researchers (Cihak et al., 2009; Lambert et al., 2015), the results from the current research do not delineate which specific components of the tootling intervention (e.g., group contingency, public posting, preteaching, peer attention) prove to be most effective in decreasing disruptive behavior and increasing appropriate behavior. Future research should conduct a component analysis to determine which factor or combination of factors is attributed to the greatest effect.

Data collection procedures used within the research combined the behavior of all individuals within the class across the observation intervals to determine the overall effect of the tootling intervention on class-wide disruptive behavior, on-task behavior, and tattling. Future research should examine the individual effects of the tootling intervention on preschool behavior. Furthermore, the current research did not provide individual ratings of the preschooler's level of prosocial behavior before and after the

tooting intervention. Future research should utilize a measure such as Preschool Social Behavior Scale- Teacher Form (TSBS-T; Crick, Casas, & Mosher) to evaluate the intervention effects on each individual preschooler's prosocial behavior and evaluate the use of tootling as a Tier II intervention with target students.

Another limitation of the current study includes the lack of a measure of true interobserver agreement for the direct behavior ratings completed by the teachers. Future researchers should complete the direct behavior ratings themselves following the observation of the circle time to provide interobserver agreement data or train another teacher within the classroom to record direct behavior ratings of the circle time disruptive behavior as well.

Furthermore, due to the nature of the variability in the preschoolers' schedules (i.e., half-day versus full-day), the tootling intervention was only implemented in the morning class period. Future research should evaluate the effects on disruptive behavior in preschools when implementing the tootling intervention for the entire day to determine if greater effects would be evident. Future research should also examine the impact that an entire day of tootling versus a half-day of tootling provides on the maintenance effects observed once the tootling intervention has been discontinued or decreased in fidelity.

As noted earlier, there were some difficulties within this study regarding internet speed and the disruption on direct observations and consultation sessions. When using technology for consultation purposes or as the means for collecting data, it is essential to have a successful internet connection. Future research could test internet connections prior to the beginning of the study and provide the schools or classrooms with high-speed internet connections in order to ameliorate these difficulties. In addition, future research

should examine how the use of the technology could further simplify the data collection process for the teachers such as using class dojo to collect data for each child.

Conclusion

Overall, literature shows that tootling has produced effective outcomes in kindergarten classrooms, first-grade classrooms, second-grade classrooms, third-grade classrooms, fourth-grade classrooms, fifth-grade classrooms, and sixth-grade classrooms (Cashwell et al., 2001; Cihak et al., 2009; Lambert et al., 2015; McHugh, 2014; Morrison & Jones, 2007; Shelton-Quinn, 2009; Sherman, 2012; Skinner et al., 2000; Torbeck, 2005; Wilson et al., 2001). This study added to the literature by examining the effects of the tootling intervention on preschool children. Research from this study showed that tootling in preschool helps to increase preschool prosocial behavior, decrease tattling, decrease disruptive behavior, and in some classes increase on-task behavior. Due to issues with the direct observation method for class-wide on-task behavior, future research should examine whether tootling impacts on-task behavior more when looking at individual target students. Technology proved to be an effective way to provide consultation and collect data; however, future research should ameliorate the issues with technology to streamline the teleconsultation process. Researchers should continue this line of research on the tootling intervention and find ways to encourage school-based practitioner's use of the intervention, as its positive basis has many potential effects for a wide range of grades.

APPENDIX A

DEMOGRAPHIC INFORMATION QUESTIONNAIRE

Demographic Information

1. Sex (circle one):

   Female

   Male

2. Age: _____

3. Years of teaching: _____

4. Highest Level of Education: _____

5. Please circle one of the following:

   African American

   Asian American

   White, non-Hispanic

   White, Hispanic

   Middle Eastern

   Other: _____

6. Have you ever used video chat/conferencing (e.g. Skype, Facetime, etc.)?

   Yes If yes, which software? _____

   No

7. Have you ever used a touch screen computer, phone, or tablet device?

   Yes If yes, which device(s)? _____

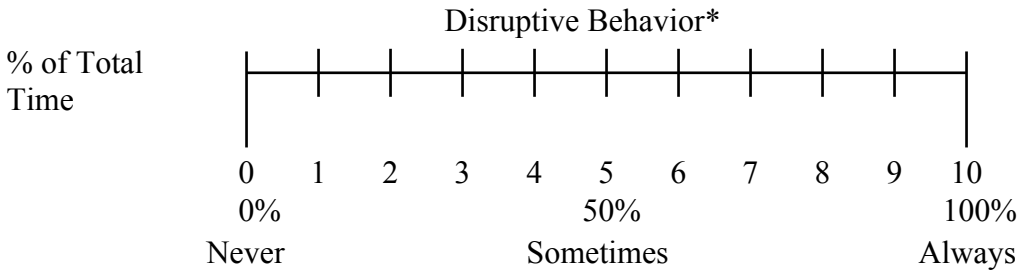
   No

APPENDIX B

DIRECT BEHAVIOR RATING, SINGLE ITEM SCALE

Please rate the class as a whole on the level of disruptive behavior during the designated time 20-30 minute time period.

Disruptive behavior is student action that interrupts regular school or classroom activity. For example: out of seat, fidgeting, playing with objects, acting aggressively, talking/yelling about things that are unrelated to classroom instruction.



* Remember that a lower score for "Disruptive" is more desirable.

APPENDIX C

TEACHER STRESS INVENTORY

TEACHER CONCERNS INVENTORY: Name _____ Age_____

The following are a number of teacher concerns. Please identify those factors which cause you stress in your present position. Read each statement carefully and decide if you ever feel this way about your job. Then, indicate how strong the feeling is when you experience it by circling the appropriate rating on the 5-point scale. If you have not experienced this feeling, or if the item is inappropriate for your position, circle number 1 (no strength; not noticeable). The rating scale is shown at the top of each page.

Examples:

I feel insufficiently prepared for my job. 1 2 3 4 5

If you feel very strongly that you are insufficiently prepared for your job, you would circle number 5.

I feel that if I step back in either effort or commitment,
I may be seen as less competent. 1 2 3 4 5

If you never feel this way, and the feeling does not have noticeable strength, you would circle number 1.

	1	2	3	4	5
HOW STRONG ?	no strength; not noticeable	mild strength; barely noticeable	medium strength; moderately noticeable	great strength; very noticeable	major strength; extremely noticeable

---

WORK-RELATED STRESSORS

1. There is little time to prepare for my lessons/responsibilities. 1 2 3 4 5

2. There is too much work to do.	1	2	3	4	5
3. The pace of the school day is too fast.	1	2	3	4	5
4. My caseload/class is too big.	1	2	3	4	5
5. My personal priorities are being shortchanged due to time demands.	1	2	3	4	5
6. There is too much administrative paperwork in my job.	1	2	3	4	5

Add items 9 through 14; divide by 6; place your score here: _____

DISCIPLINE AND MOTIVATION

I feel frustrated...

7. ...because of discipline problems in my classroom.	1	2	3	4	5
8. ...having to monitor pupil behavior.	1	2	3	4	5
9. ...because some students would be better if they tried.	1	2	3	4	5
10. ...attempting to teach students who are poorly motivated.	1	2	3	4	5
11. ...because of inadequate/poorly defined discipline problems.	1	2	3	4	5
12. ...when my authority is rejected by pupils/administration.	1	2	3	4	5

Add items 20 through 25; divide by 6; place your score here: _____

TIME MANAGEMENT

1. I easily over-commit myself.	1	2	3	4	5
2. I become impatient if others do things to slowly.	1	2	3	4	5
3. I have to try doing more than one thing at a time.	1	2	3	4	5
4. I have little time to relax/enjoy the time of day.	1	2	3	4	5
5. I think about unrelated matters during conversations.	1	2	3	4	5
6. I feel uncomfortable wasting time.	1	2	3	4	5
7. There isn't enough time to get things done.	1	2	3	4	5
8. I rush in my speech.	1	2	3	4	5

Add items 1 through 8; divide by 8; place your score here: _____

PROFESSIONAL DISTRESS

15. I lack promotion and/or advancement opportunities.	1	2	3	4	5
16. I am not progressing my job as rapidly as I would like.	1	2	3	4	5
17. I need more status and respect on my job.	1	2	3	4	5
18. I receive an inadequate salary for the work I do.	1	2	3	4	5
19. I lack recognition for the extra work and/or good teaching I do.	1	2	3	4	5

Add items 15 through 19; divide by 5; place your score here: _____

PROFESSIONAL INVESTMENT

26. My personal opinions are not sufficiently aired.	1	2	3	4	5
27. I lack control over decisions made about classroom/school matters.	1	2	3	4	5
28. I am not emotionally/intellectually stimulated on the job.	1	2	3	4	5
29. I lack opportunities for professional improvement.	1	2	3	4	5

Add items 26 through 29; divide by 4; place your score here: _____

TOTAL SCORE

Add all calculated scores; enter the value here _____.

Then, divide by 5; enter the Total Score here _____.

APPENDIX D

DISTANCE COMMUNICATION COMFORT SCALE

Identifying Information:

Sex: Male Female **Age:** _____

A number of statements are given below asking you how you feel about three different types of communication (two-way audio (telephone), two-way video (video phone), and face-to-face) that might be used when receiving consultation. Although you may not have ever seen a therapist or a consultant, please indicate how you anticipate you would feel about each of the statements.

The scale uses a seven point scale, shown below, where *1 = strong disagreement* and *7 = strong agreement*. Read each statement and indicate how you generally feel using the given scale. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer, which seems to describe your general feelings.

1 2 3 4 5 6 7

Strongly Disagree Strongly Agree

You can indicate how you feel by choosing a number between 1 and 7. Circle the number that most closely represents how much you agree or disagree with the statement. There are no 'correct' responses; it is your own views that are important.

It is important that you respond to every statement. Please circle the response that you think is the most appropriate.

Talking to a consultant on camera would make me uncomfortable.	1	2	3	4	5	6	7
I think I would enjoy discussing problems with a consultant over the telephone.	1	2	3	4	5	6	7
I think meeting and talking with a consultant over a videophone would not detract from my ability to focus.	1	2	3	4	5	6	7
It's easier to concentrate on what someone is saying when communicating over the telephone.	1	2	3	4	5	6	7
I would prefer to talk to my consultant in person.	1	2	3	4	5	6	7
I think a therapist would have a hard time understanding me if we communicated by two-way video.	1	2	3	4	5	6	7

Paying attention to a consultant who was in the same room would be very easy.	1	2	3	4	5	6	7
I think I would dislike talking to a therapist on the telephone.	1	2	3	4	5	6	7
I think discussing problems with a consultant over a videophone would be fun and interesting.	1	2	3	4	5	6	7
I would feel very comfortable talking to a therapist on the telephone.	1	2	3	4	5	6	7
I think my consultant would have an easier time understanding me if we were in the same room.	1	2	3	4	5	6	7
I often find it hard to express myself when talking on the phone with another person.	1	2	3	4	5	6	7
It is easier for me to understand someone when I am in their physical presence.	1	2	3	4	5	6	7
I would probably have some difficulty in understanding my consultant if I met him/her only through a two-way video system.	1	2	3	4	5	6	7
Being in the same room with my consultant would make me uncomfortable.	1	2	3	4	5	6	7
I find it easy to maintain my focus when talking to someone over the telephone.	1	2	3	4	5	6	7
I feel self conscious when in front of the camera.	1	2	3	4	5	6	7
I feel detached or far away when talking on the telephone.	1	2	3	4	5	6	7
If I were communicating through a videophone I believe it would be easy to maintain my attention.	1	2	3	4	5	6	7
I become easily distracted when talking with someone on the telephone.	1	2	3	4	5	6	7
Understanding my consultant over the telephone would probably be difficult.	1	2	3	4	5	6	7
Using a videophone to discuss problems with a consultant would be distracting.	1	2	3	4	5	6	7
I would feel quite comfortable discussing my problems with a consultant over two-way video.	1	2	3	4	5	6	7
I am easily distracted when conversing with someone who is in the same room.	1	2	3	4	5	6	7
I would enjoy discussing problems with a consultant who was in the same room as I.	1	2	3	4	5	6	7
I find it easier to concentrate on what someone is saying when we are in the same room.	1	2	3	4	5	6	7
I would be more comfortable if my consultant was in the same room as I.	1	2	3	4	5	6	7

APPENDIX E

TECHNOLOGY ACCEPTANCE MODEL INSTRUMENT – FAST FORM

Technology Acceptance Model Instrument-Fast Form

To aid me in the discussion of student academic/behavioral concerns, overall, I feel that videoconferencing as a method for a consultation interview is:

1	Inefficient	-3	-2	-1	0	1	2	3	Efficient
2	Performance degrading	-3	-2	-1	0	1	2	3	Performance enhancing
3	Productivity decreasing	-3	-2	-1	0	1	2	3	Productivity increasing
4	Ineffective	-3	-2	-1	0	1	2	3	Effective
5	Unhelpful	-3	-2	-1	0	1	2	3	Helpful
6	Quite useless	-3	-2	-1	0	1	2	3	Quite Useful
7	Difficult to learn	-3	-2	-1	0	1	2	3	Easy to learn
8	Difficult to manipulate	-3	-2	-1	0	1	2	3	Easy to manipulate
9	Obscure to interact with	-3	-2	-1	0	1	2	3	Clear to interact with
10	Rigid to interact with	-3	-2	-1	0	1	2	3	Flexible to interact with
11	Difficult to master	-3	-2	-1	0	1	2	3	Easy to master
12	Very cumbersome	-3	-2	-1	0	1	2	3	Very usable

APPENDIX F

BEHAVIOR INTERVENTION RATING SCALE

Please evaluate the tootling intervention by circling the number which best describes *your* agreement or disagreement with each statement. You *must* answer each question.

1. This would be an acceptable intervention for the child's problem behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

2. Most teachers would find this intervention appropriate for behavior problems in addition to the one described.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

3. The intervention should prove effective in changing the child's problem behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

4. I would suggest the use of this intervention to other teachers

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

5. The child's behavior problem is severe enough to warrant use of this intervention

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

6. Most teachers would find this intervention suitable for the behavior problem described

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

7. I would be willing to use this in the classroom setting

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

8. The intervention would not result in negative side-effects for the child

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

9. The intervention would be appropriate intervention for a variety of children

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

10. The intervention is consistent with those I have used in classroom settings

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

11. The intervention was a fair way to handle the child's problem behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

12. The intervention is reasonable for the behavior problem described

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

13. I like the procedures used in the intervention

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

14. This intervention was a good way to handle this child's behavior problem

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

15. Overall, the intervention would be beneficial for the child

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

16. The intervention would quickly improve the child's behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

17. The intervention would produce a lasting improvement in the child's behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

18. The intervention would improve the child's behavior to the point that it would not noticeably deviate from other classmates' behavior.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

19. Soon after using the intervention, the teacher would notice a positive change in the problem behavior

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

20. The child's behavior will remain at an improved level even after the intervention is discontinued.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

21. Using the intervention should not only improve the child's behavior in the classroom, but also in other settings (e.g., other classrooms, home)

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

22. When comparing this child with a well-behaved peer before and after use of the intervention, the child's and the peer's behavior would be more alike after using the intervention.

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

23. The intervention should produce enough improvement in the child's behavior so the behavior no longer is a problem in the classroom

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

24. Other behaviors related to the problem behavior also are likely to be improved by the intervention

1	2	3	4	5	6
Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree

APPENDIX G

SAMPLE SCRIPTS FOR TRAINING SESSIONS WITH STUDENTS

Training Day 1 (Conducted During Circle Time)

1. Introduce Tootling

Start by introducing the tootling puppet. Start with the monkey hidden inside of the barrel. Pull the barrel out of the circle time basket and ask the children who they think is inside. Have the children make a knocking noise as you knock on the barrel to try and get Tom to come out. Use your hand in the puppet to push Tom out through the top of the barrel. Have the monkey introduce himself as "tootling tom". Then ask the question to the monkey, what does tootling mean? The monkey can explain that tootling is the opposite of tattling. Ask the children if they know what tattling means? After some examples of what children think tattling means, you can summarize them all by saying that tattling is telling a teacher about something another friend is doing wrong. Since tootling is the opposite of tattling, when we tootle, we want to tell the teacher about when other children do things that are right or when they are following the class rules.

2. Provide Examples of Tootles

Explain to the kids that when we tootle we want to find appropriate behaviors of other friends that we have seen with our own eyes. An appropriate behavior is someone who is following the class rules. Introduce the class rules. There are five class rules. The first rule is use kind words with friends. Ask the children for an example of how someone could use kind words. The second rule is use gentle hands. Ask the children for an example of when a child could use gentle hands (instead of aggressive or rough hands). The third rule is to share things with friends or take turns with friends. Ask the children for an example of when someone could share or take turns with friends. The fourth rule is to help other friends. Ask the children for examples of when they could help friends out throughout the day. The fifth rule is to invite new friends to play with us. Ask children for some examples of when they could invite new friends to play with them.

3. Explain Behaviors to Ignore

Using Tootling Tom to explain to the children that we want to ignore other friend's inappropriate behaviors. So when someone does something that doesn't follow the class rules, we want to just pretend it didn't happen. We only want to give tootles or tell the teacher about the good behaviors we see our friends doing. For example, ask the children if a friend isn't sitting right at circle time, would we want to tell the teacher? What would we do instead?

4. Explain the Rewards

Explain to the children that every time they give a tootle to their friend, they can earn a token to place in the class-wide barrel! After they tootle the friend by sharing the nice thing they saw the friend do, they go and tell the teacher what they saw a friend do and the teacher will give them a corresponding token. Ask the children to repeat back how they can earn a class reward. After a child shares how they can earn the class reward, brainstorm with the class some ideas for class rewards. Have some examples ready to poll the class, in order to see if that reward would be something they are interested in. Have the children give a "thumbs up" or a "thumbs down" when you say an idea so you can gauge the amount of enthusiasm towards an idea. You want to find effective reinforcers to motivate the children to tootle!

Training Day 2 (Conducted During Circle Time)

1. **Review of Tootling**
   Using "Tootling Tom" the monkey puppet, see how much the children remember about tootling and what it is. Introduce the tootling song to the children.

2. **Review of Classroom Rules**
   Have Tootling Tom help the children review the classroom rules. Remind the children that they can tootle any behavior that they see that follows the classroom rules. Review what each of those behaviors would look like to remind children of the expectations by providing examples.

3. **Practice Tootling**
   Ask for some volunteers to practice giving a tootle to a friend. Have one child pretend to share a toy with another child. The child who received the toy would then give a tootle by saying to the friend "I like how you shared that toy with me" or "You did a great job sharing that toy with me, thank you!". The child would then model going to tell the teacher. "Ms. Emily, I just saw Bobby do a great job sharing his toy that he was playing with." The teacher would then give the tootle token to the student for them to place inside the tootle barrel. You could then do another role play scenario with a friend inviting a new friend to play with them or a friend pretending to help another friend. Go through all parts of the process for tootling so that they understand each component.

4. **Review Ignoring Inappropriate Behaviors**
   Remind children that we only want to provide tootles for the good behavior that we see other children doing and we want to just ignore when someone is not following the class rules.

5. **Review of Reinforcers**
   Review with the students how they can earn a token and how they earn a reinforcer as a whole class.

Training Day 3 (Conducted During Circle Time)

1. Review of Tootling

Using "Tootling Tom" the monkey puppet, see how much the children remember about tootling and what it is. Practice the tootling song with the children again.

2. Review of Classroom Rules

Have Tootling Tom help the children review the classroom rules. Remind the children that they can tootle any behavior that they see that follows the classroom rules. Review what each of those behaviors would look like to remind children of the expectations by providing examples.

3. Practice Tootling

Ask for some volunteers to practice giving a tootle to a friend. Go through all parts of the process for tootling so that they understand each component. Ask for examples of behaviors that children should look for and do themselves if they want to receive a tootle.

4. Review Ignoring Inappropriate Behaviors

Remind children that we only want to provide tootles for the good behavior that we see other children doing and we want to just ignore when someone is not following the class rules.

5. Review of Reinforcers

Review with the students how they can earn a token and how they earn a reinforcer as a whole class.

APPENDIX H

DAILY REVIEW CHECKLIST

Please check which items you complete each day

1. Review tootling with the class in the morning during circle time _____
2. Use the tootling song or other preferred method to review the rules with the children (during circle time) _____
3. Review how to earn a token during circle time _____
4. Provide the children with tootle tokens with the corresponding color for the specific tootle that they gave _____
5. Review some examples of tootles children gave throughout free play during transition time _____
6. Provide the class with a class-wide reward when they fill the token barrel _____

APPENDIX I

TOOTLING SONG

The song is sung to the tune of 'If You're Happy and You Know it'

If you are ready to tootle clap your hands!
If you are ready to tootle clap your hands!
If you are ready to tootle and you want to tell a friend,
If you are ready to tootle clap your hands!

If a friend uses nice words, give a tootle!
If a friend uses nice words, give a tootle!
If they use nice words and you want to let them know
If a friend uses nice words, give a tootle!

If a friend shares a toy, give a tootle!
If a friend shares a toy, give a tootle!
If a friend shares a toy and you want to let them know
If a friend shares a toy, give a tootle!

If you see gentle hands, give a tootle!
If you see gentle hands, give a tootle!
If you see gentle hands and you want to let them know
If you see gentle hands, give a tootle!

Invite a friend to play, and get a tootle!
Invite a friend to play and get a tootle!
Invite a friend to play and you may get tootle
Invite a friend to play and get a tootle!

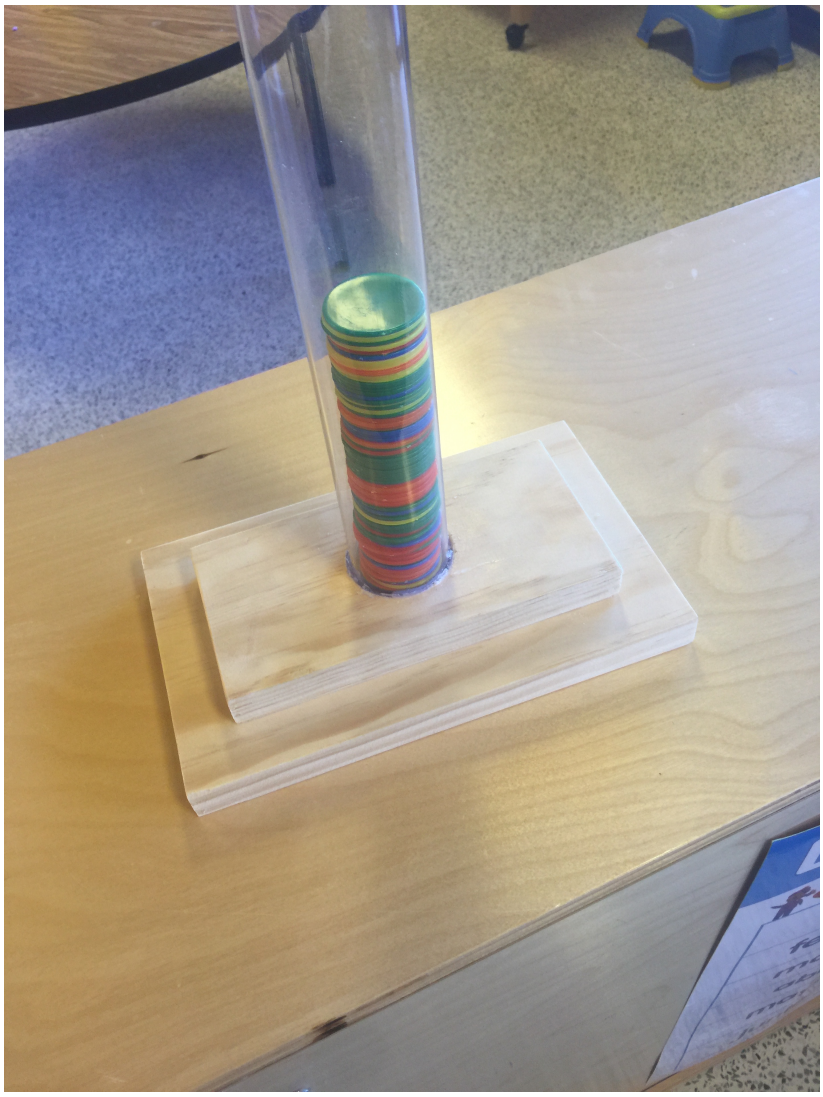
Help one of your friends and get a tootle!
Help one of your friends and get a tootle!
If you help one of your friends, you may get a tootle

Help one of your friends and get a tootle!

If you are ready to tootle clap your hands!
If you are ready to tootle clap your hands!
If you are ready to tootle and you want to tell a friend,
If you are ready to tootle clap your hands!

APPENDIX J

TOOTLING TOKEN TOWER



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